

University News

MONDAY, SEPTEMBER 5, 1994

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S. LAKSHMI

On Student Evaluation

R.P. BHATNAGAR & N.K. JAIN

UGC Net Examination

— One More Analysis

ANAND P. SRIVASTAVA

Traditional Libraries to Automated Megasystem — Needed Attitudinal Changes

RAJENDRA PAL & HEMANT KHANDOI.

Status of Women's Education

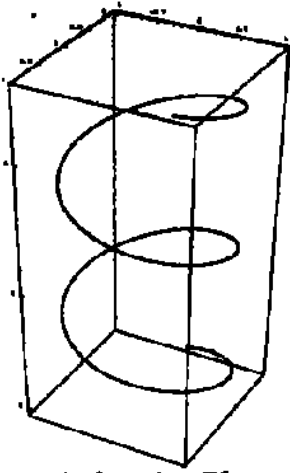
— Some Expected Changes

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```
In [1] := 3 ^ 50
Out [1] = 717897987691852588770249
```

```
In [2] := N[(2 - 3I)/(2 + 3I)]
Out [2] = -0.384615 - 0.923077I
```

```
In [3] := FindRoot[BesselJ[0,x],{x,14.5}]
Out [3] = {x -> 14.9309}
```

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```
In [1] := Integrate[x/(a + Exp[x]), x]

      x^2      x Log[1 + E^x] PolyLog[2, -E^x]
Out [1] = ----- - ----- - -----
      2a      a      a
```

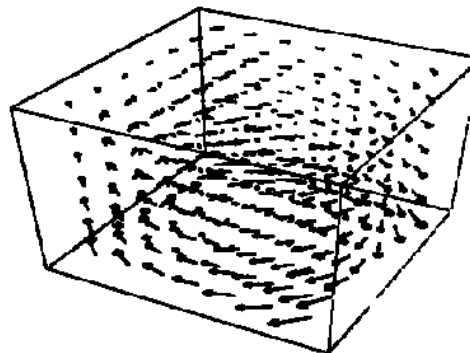
Symbolic Computation

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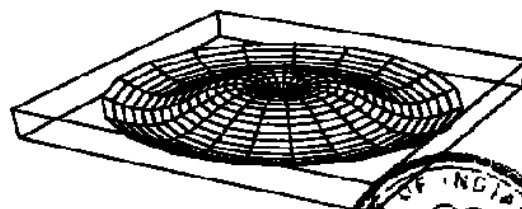
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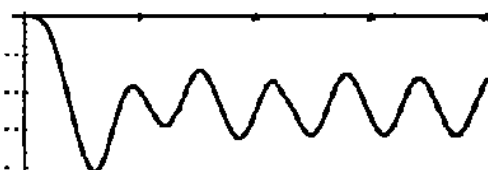


3D vector plot

```
In [1] := << Graphics`SurfaceOfRevolution`
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```



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Editor :
SUTINDER SINGH

On Student Evaluation

S. Lakshmi*

The main objective of higher education is to provide indepth knowl-
edge in specialised areas of different disciplines. This cognitive objec-
tive represents various levels, such as information, understanding,
application, analysis, synthesis and evaluation and every scholar of
education becomes clearer about the cognitive domain, when he frames
evaluatory questions in the curriculum-content learnt by students. The
teacher teaches and the learner learns! But the process of teaching-
learning does not stop there. Has the learner learnt what all he should
have learnt and it also means that the teacher has taught, whatever
should have been taught by him. If this statement is true, then the
process of evaluation becomes forthrightly simple. And all students
would secure the maximum and no student will be declared a 'failure'
after all the education is doled out to him.

It is interesting but this is what is happening. Examination which is
one of the techniques of evaluation/tests mostly mere information or
rote memory with a few exceptions of course, when application and
other aspects of critical thinking get tested. He who scores the mini-
mum prescribed, is declared to have passed in the examination and is
certified to that effect.

When a student enters a course of study, he is supposed to possess
the necessary entry behaviour in terms of cognitive behaviour and
through the curriculum of the course of study, he will ensure that the
expected outcome or terminal behaviour has resulted. The present
examination ensures certification but it does not ensure the outcome of
terminal behaviour.

And today's examination except for a few practicals and projects,
are paper-pencil tests. The system of annual examination has triggered
off several negative elements in its wake, such as corruption and mal-
practice, since strict adherence to the rules of discipline by the examin-
ers, examinees and the supervisors is not insisted upon.

Educating youth is a tremendous trust, entrusted to teachers. The
question often raised is about the trustworthiness or credibility of the
teaching community, in matters connected with the examination work.
Teacher accountability is questioned from too many quarters. Most
institutions are hence comfortable with 100% external examination and
with no internal continuous evaluation. The traditional system of an-
nual examination with the several inadequacies and evils continues
and innovations such as introducing the semester system of examina-
tion with continuous internal assessment, credit system and criterion-
referenced evaluation appear to be a far-off goal, which very few
people hope to reach.

Evaluation as a process of obtaining information and using it to
make judgement is an essential aspect of the teaching-learning process.
It is an appraisal of the changes that take place in the student as a result

*Vice Chancellor, Mother Teresa Women's University, Kodaikanal 624 102.

of his learning and is interwoven with the cognitive, the affective and the psychomotor objectives of education at all levels. This process of evaluation, through which students' performance appraisal is attempted, ultimately helps in decision making.

Depending on the changing needs of the science based and technology oriented society, the methodology of learning needs to be on innovative lines; this should ensure, better student-learning and hence achievement in specialised areas of knowledge, understanding and application of the curriculum provided at higher education.

To provide clearer perspective about the curriculum to the scholar and to make learning more specific and effective, semester system is considered as one of the tools of educational wisdom that was given a trial earlier and is still practised by several colleges today.

Under the semester pattern, the course of study/ curriculum-work is brought under two or more semesters. The examinations are conducted either at the end of the semester, and valued by external examiners or continuous internal evaluation is adhered to, to examine student performance in knowledge areas. It is essential to remember that the affective domain which focuses on value development and character education is yet to be given serious consideration by higher education. Similar fate is observable in the skill based psychomotor domain of objectives in higher education.

The stress in higher education is mostly on the achievement of specialised areas of cognition. The semester pattern, followed by continuous internal evaluation coupled with external examination was attempted as an innovative measure in higher education from the early seventies.

Recently the Tamil Nadu State Council for Higher Education attempted to find out the feasibility of introducing semester system and continuous internal evaluation in colleges of Tamil Nadu. A questionnaire was prepared and sent to all the colleges of various universities in Tamil Nadu and the respondents were the principals and professors of colleges. Findings of the study are reported here.

Eighty six colleges responded to the questionnaire. (14 autonomous colleges and 73 non-autonomous colleges.) 82.56% of the respondents stated that self-reliance of students increases as a result of

semester system. Continuous internal evaluation is favoured by the majority (83.72%).

Semester system ensures good relationship between students and teachers which means that students learn better and will be regular in studies since they cannot afford to spend their time 'wastefully'. Study becomes 'time bound' and 'regular'. Hardwork is ensured. An interesting finding of the study was that creativity of students was on the increase since the semester curriculum offered tremendous scope for divergent thinking.

The recommendations of the feasibility study report are as follows :

1. All colleges are required to implement the semester system and continuous internal evaluation (CIE) from the academic year 1995-96, (due preparation is required for the same).

2. Considering the delays in admissions, it is recommended that for the first year all colleges adopt an annual pattern with CIE. The subsequent years should be on semester pattern.

3. The Tamil Nadu State Council for Higher Education (TANSCHÉ) should identify resource persons during the next one year so that they could visit every college in the state and conduct one-week-training programme for implementing the semester system with CIE. TANSCHÉ may provide necessary funds to universities for arranging the training, wherever necessary.

4. It is important that the Tamil Nadu State Council for Higher Education also prepares a well conceived Training Manual and Guide Book in sufficient quantity so as to be made available to each of the teachers.

5. The Committee recommended that 50% weightage should be given for continuous internal evaluation and 50% for annual/external examinations and semester examination with a minimum of 50% in each for a pass. It is also suggested that weightage for CIE may preferably be left to the individual Universities.

6. As a part of the training programme, it is also essential that each college has at least two persons trained in record keeping and computerisation. It may be essential to train non-teaching staff of the office of the principal also in addition to the teaching staff.

(Contd. on page 13)

UGC NET Examination

One More Analysis

R.P. Bhatnagar*
N.K. Jain**

An evaluation of UGC's Junior Research Fellowship Test was made by Bhatnagar in 1992. It was published in *University News* of 23 March 1992. This study was based on an analysis of the NET Examinations held in 1986, 1987 and 1988. The analysis was confined to only 12 traditional subjects taught at most universities of India. These were (1) Economics, (2) Political Science, (3) Philosophy, (4) Psychology, (5) Sociology, (6) History, (7) Anthropology, (8) Commerce, (9) Education, (10) Hindi, (11) Sanskrit, and (12) English. The reliability and validity of the tests were also established. It was concluded that the examination as a whole was sufficiently reliable and valid. A few other conclusions drawn were that (1) the best performance was shown by 12 universities including Delhi, JNU, Allahabad, Rajasthan, Utkal, Calcutta, Kerala, Patna, Hyderabad, Panjab, Lucknow and Madras; (2) out of 110 universities included in the analysis, 25 did not produce a single JRF in any of the NET Examinations; (3) 67% of the total number of fellowships awarded in these 12 subjects over these three years were won by these 12 universities. The remaining 98 universities could share only 33% of these fellowships. The mean of the JRFs of these 12 universities was found to be 104.5 while that of the remaining 98 universities was found to be only 6.7 which shows a big difference between the performance and standards of those 12 and other universities; (4) The analysis also revealed which faculty was strong at which university; and (5) statewise analysis revealed which state had the largest share in the total number of JRFs and which university in the state had shown the best performance.

Since 1988 a number of examinations have been held. Some changes in the pattern have also been

made. Now, instead of one examination two examinations are held in one year. An almost uniform pattern of courses, papers, number of questions to be answered has been introduced for most subjects. This calls for a fresh review of the examination with a view to demonstrate whether the examination is still reliable and valid, whether the same 12 universities still maintain their excellence? Whether the faculties found to be strong in respective universities still retain that status? Whether the states have registered any change in their share in the total number of JRFs awarded? In order to answer these questions, another study of the NET examinations was conducted. This study was confined to the examinations held in 1990, 1991 and 1992. This study also concerned itself with the same 12 traditional subjects which formed the basis of the earlier study published in 1992. The analysis included 123 universities of India. Medical, Technical, Engineering and other institutions of highly specific nature were excluded from the purview of the study. The results obtained are presented in this paper.

Reliability of the Examinations

The first question to be answered was: "how reliable are the NET examinations"? The reliability of an examination is defined as the consistency of its behaviour. If it yields consistently the same results, it may be considered reliable. Looking from this point of view, the examinations appear to be highly reliable as they consistently picked up the same universities as the first 12 universities each year over the past seven years. This was the position during 1986 to 1988 and this is the position during 1990 to 1992. A comparative look at the first 12 universities in 1990, 1991 & 1992 clearly demonstrates this. The rank order correlation between the positions of 1990 and 1991 comes to be 0.8626. Similarly the rank order correlation between positions of 1991 and 1992 is found to be 0.523.

*Retd. Prof. & Head, Deptt. of Education,
Meerut University, Meerut.

**Deputy Secretary, UGC (NET), New Delhi.

Table 1: First 12 Universities during 1990 to 1992

Year 1990	Year 1991	Year 1992
1. Delhi (191)	1. Delhi (83)	1. Delhi (78)
2. JNU (112)	2. JNU (78)	2. JNU (78)
3. Allahabad (99)	3. Allahabad (48)	3. Allahabad (38)
4. Panjab (56)	4. Rajasthan (34)	4. Hyderabad (24) Utkal each
5. Rajasthan (44)	5. Panjab (29)	5. Calcutta (22)
6. Utkal (36)	6. Utkal (19)	6. Rajasthan (21)
7. Calcutta & Madras (33)	7. Madras & Kerala (18 each)	7. Lucknow (15)
8. Kerala (29)	8. Patna, BHU & Madurai (11 each)	8. Panjab (15)
9. Lucknow (25)	9. Calcutta, Lucknow Osmania (10 each)	9. Calcutta (14)
10. Patna (24)		10. Madras & Patna (13 each)
11. Hyderabad (22)		11. Kerala (11)
12. BHU (19)		12. BHU (8)
Total JRFs awarded		
1060	616	550

On the basis of the analysis of 1986, 1987, 1988 examinations, as found in the study made by Bhatnagar, the best performance in order was shown by Delhi (295), JNU (210), Allahabad (182), Rajasthan (98), Utkal (87), Calcutta (68), Kerala (67), Patna (51), Hyderabad (50), Panjab (44), Lucknow (49) and Madras (47). Except a change of one or two positions this order is very similar to that of 1990, 1991 and 1992. There seems to be a very high correlation between the performance of these universities on NET Examinations over the years from 1986 to 1992. The results of 1989 are not included. But they can be mentally interpolated as to be similar to results of other years. This gives enough evidence of the consistency behaviour (in other words reliability) of the NET examinations at least over the last seven years from 1986 to 1992. Every year the examinations are picking up almost the same universities as the first twelve universities. Another evidence of the reliability of the examinations may be found in their validity. An examination can be hundred percent reliable without being valid; but no test can be valid without being reliable. So, if the NET examinations are found to be valid, it may be concluded that they are reliable also. Let us see how valid these examinations are.

Validity of the Examinations

Validity of a test means the extent to which it

measures what it purports to measure. The NET examinations intend to measure academic excellence. So it must discriminate between the low and the high on academic performance on some external criterion. University examinations can be one of such criteria. First and second divisions, by and large, may be considered indicative of high and low performance. If the NET examinations are valid they must significantly discriminate between the second and the first divisioners qualifying this examination. In other words there should be significantly larger number of first divisioners among those who qualify the NET examination. If the test is not valid the ratio between them should be fifty-fifty. A significant departure from this 50-50 distribution will eliminate the chance factor and prove that the examinations are valid. To search for this kind of evidence Chi-square value was calculated for testing the departure of obtained distribution from equal distribution supposed to be yielded by chance. The following Chi-square table was prepared after collecting the data for 1992.

Table 2: Chi-Square Test for Validity

	II Div.	I Div	Total
0	132	418	550
E	275	275	550
0-E	143	143	
(0-E) ²	20449	20449	
(0-E) ² /E	74.36	74.36	

Chi-sq = 74.36+74.36 = 148.72, Highly Sig. for 1 df.

Chi-square values for 1991 and 1990 also were found to be significant. This provides strong enough evidence that the examinations significantly discriminate between the low and the high performers in the university examinations. So, they may be considered valid. This also points out to the fact that the examinations are reliable too, as without being reliable they cannot be valid. Another evidence of the validity of these examinations is provided by the fact that the top twelve universities on the NET examinations are almost the same which emerge to be the top in the All India Examinations for administrative services conducted by the Union Public Service Commission, New Delhi.

Top Faculty Positions

Table 3 reveals which university obtained top position in which faculty in 1990, 1991 and 1992 in terms of the largest number of fellowships.

Table 3: Faculties

YEAR	ECO	PS	PH	PSY	SO	HIS	AN	COM	EDU	HIN	SAN	ENG
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1990	JNU	JNU	ALLD	DEL&PB	JNU	JNU	DEL	DEL	DEL&PB	DEL	DEL	KER
	(22)	(29)	(19)	(8)	(22)	(25)	(20)	(24)	(7)	(26)	(19)	(15)
Total:	136	125	84	45	66	122	49	116	54	96	104	99
1991	JNU	JNU	ALLD	DEL	JNU	ALLD	DEL	DEL	KSH	DEL	DEL	KER
	(21)	(18)	(21)	(4)	(15)	(16)	(3)	(14)	(5)	(10)	(11)	(9)
Total:	82	61	34	22	39	85	17	87	35	44	56	54
1992	JNU	JNU	ALLD	DEL	JNU	JNU	DEL	DEL	KER	JNU	DEL	JDP
	(13)	(19)	(10)	(8)	(16)	(15)	(4)	(12)	(4)	(10)	(10)	(6)
Total:	79	57	30	27	38	75	14	76	36	37	43	38

(1) Eco= Economics; (2) PS = Political Science, (3) PH = Philosophy, (4) Psy = Psychology, (5) So = Sociology, (6) His = History, (7) An = Anthropology, (8) Com= Commerce, (9) Edu = Education, (10) Hin = Hindi, (11) San = Sanskrit, (12) Eng = English

Yearwise total number of fellowships awarded in these 12 subjects was :

1990	1096
1991	616
1992	550
Total for 3 years	<u>2262</u>

It may be seen from the foregoing table that in 1990 JNU had top positions in four faculties, Delhi in six, Allahabad in one and Kerala in one.

1991 JNU had top positions in five faculties, Delhi also in five, Allahabad in one and Kerala in one.

1992 JNU had top positions in five faculties, Delhi also five, Allahabad one and Kerala one.

JNU has been at the top in Economics, Political Science and sociology in all the three years from 1990 to 1992. Same was the finding of the earlier study based on the data of 1986, 1987 and 1988. Delhi University was first in Psychology, Anthropology, Commerce and Hindi in all these years repeatedly. According to the analysis of the results of 1986, 1987 and 1988 first position in Commerce had gone to Rajasthan and Hindi to Allahabad. In 1990, 91, 92 both these first positions have gone to Delhi. Allahabad University has been

at the top in Philosophy not only from 1990 to 1992, but right from 1986 onwards.

Best Three Faculties

Yearwise best three faculties have been found to be as follows :

1. Economics :

1990 : I JNU (22), II Delhi (20), III Calcutta (11)
 1991 : I JNU (21), II Calcutta, North Bengal, Rajasthan (6 each), III Utkal (5).
 1992 : I JNU (13), II Utkal (9), III Calcutta (7)

2. Political Science :

1990 : I JNU (29), II Delhi (19), III Allahabad (18)
 1991 : I JNU (18), II Delhi (13), III Rajasthan (7)
 1992 : I JNU (19), II Delhi (10), III Rajasthan (4)

3. Philosophy:

1990 : I Allahabad, (19), II Kerala, Delhi, Calcutta (5 each), III Panjab & Satya Sai Inst. (4 each)
 1991 : I Allahabad (21), II Utkal (3), III Hyderabad & Madras (2 each)
 1992 : I Allahabad (10), II Utkal (3), III Delhi & Madras (2 each).

4. Psychology :

1990 : I Delhi & Panjab (8 each), II Allahabad & Utkal (4) III Madras (3)

1991 : I Delhi (4), II Utkal (3), III Lucknow & Panjab (2 each)

1992 : I Delhi (8), II Allahabad (3), III Annamalai (2)

5. Sociology :

1990 : I JNU (22), II Delhi (12), III Patna (5)

1991 : I JNU (15), II Hyderabad (4), III Delhi (3)

1992 : I JNU (16), II Delhi (5), III Hyderabad (4)

6. History :

1990 : I JNU (25), II Delhi (18), III Allahabad (10)

1991 : I Allahabad (16), II Delhi (13), III JNU (12)

1992 : I JNU (15), II Delhi (13), III Allahabad (9)

7. Anthropology :

1990 : I Delhi (20), II Panjab & Calcutta (6), Vidyasagar (4)

1991 : I Delhi (3), II Allahabad & Calcutta (2 each), III Lucknow & Hyderabad (1 each)

1992 : I Delhi (4), II Hyderabad & Calcutta (3 each), III Lucknow, Kanpur, NEHU (1 each).

8. Commerce :

1990 : I Delhi (24), II Rajasthan (9), III Panjab (8)

1991 : I Delhi (14), II Madras (7), III Kurukshetra (6)

1992 : I Delhi (12), II Osmania (5), III Panjab, Rajasthan, Madurai & Punjabi (4 each)

9. Education :

1990 : I Delhi & Panjab (7), II Kerala & Mysore (4 each), III Utkal, Annamalai, Bombay (3)

1991 : I Kurukshetra (5), II Delhi and Calicut (4 each), II Indore (3)

1992 : I Kerala (4), II Delhi and Indore (3 each), III Lucknow, Mysore and Madurai (2 each)

10. Hindi :

1990 : I Delhi (26), II Allahabad (23), III JNU (11).

1991 : I Delhi (10), II JNU (7), III Gorakhpur (3)

1992 : I JNU (10), II Delhi (8), III Patna (4)

11. Sanskrit :

1990 : I Delhi (19), II Rajasthan and BHU (13), III Allahabad (9)

1991 : I Delhi (11), II Rajasthan & HP (4 each), III Patna (3)

1992 : I Delhi (10), II Allahabad (7), III Rajasthan & Ajmer (4 each)

12. English

1990 : I Kerala (15), II Delhi (13), III Madras (12)

1991 : I Kerala (9), II JNU (5), III Delhi, Madras & Bharthidasan (4 each)

1992 : I Jadavpur (6), II JNU & Calicut (5 each), III Delhi, Hyderabad & Kerala (4 each).

Share in Total Number of Fellowships

Following is an account of the share of each of the following fifteen universities in the total number of fellowships awarded in these twelve subject in 1990, 1991 and 1992 taken together (i.e. 2262) : (1) Delhi 332 (14.67%), (2) JNU 268 (11.85%), (3) Allahabad 185 (8.1%), (4) Panjab 100 (4.44%), (5) Rajasthan 99 (4.4%), (6) Utkal 93 (4.1%), (7) Calcutta 66 (2.91%), (8) Madras 64 (2.83%), (9) Hyderabad 62 (2.74%), (10) Kerala 58 (2.56%), (11) Lucknow 51 (2.25%), (12) Patna 49 (2.16%), (13) BHU 39 (1.72%), (14) Osmania 37 (1.63%), (15) Madurai 30 (1.33%).

The share of the first three universities Delhi, JNU and Allahabad in the total number of fellowships awarded (2262) is 37.4 per cent. Next to these come Panjab, Rajasthan and Utkal each sharing 4 per cent of the total. All other universities have no share worth mentioning. The universities of Aligarh, Jamia Millia, Vishwa Bharati, NEHU, Bombay, Bhopal, Poona, Rohtak, Kurukshetra, Himachal Pradesh, Nagpur, Mysore, Jodhpur, Indore, Gorakhpur, M.S. Baroda, Agra, Bangalore do appear on the map of JRF, but their performance is below expectations. If excellence is to be judged by the share in the total number of fellowships awarded, the claim of the fifteen universities mentioned earlier must be readily accepted. But even among them the difference between the level of excellence of Delhi and JNU considered separately and that of other universities seems to be highly significant. It may be interesting and meaningful to search for the factors and variables which contribute to the excellence of Delhi and JNU Universities over all the years from 1986 to 1992.

Statewise analysis revealed that 18 universities of UP on the map of JRF produced 398 JRFs during 1990, 1991 and 1992 taken together. This works out to be 17.6 per cent of the total of 2262 for the whole country. Of all these 18 universities only four (Allahabad 185, Lucknow 51, BHU 39, Meerut 27) make significant contributions. Gorakhpur, Agra, Aligarh, Kanpur and Kashi Vidyapith each produces between 10 to 14 JRFs, while Rohilkhand, Dayalbagh, Garhwal and Awadh each produced

between 5 and 9. In Bihar seven universities produced 100 JRFs, Patna getting 49, Bihar 13, Bhagalpur and Magadh 10 each, Ranchi 7 and Mithila 8. Three universities of Delhi bagged the largest number of JRFs (641) in the whole of the country i.e. 28.33 per cent out of the total 2262 for the whole country, Delhi contributing 332, JNU 268 and Jamia only 41. Three universities of Panjab produced 141 JRFs, Panjab getting 100, Guru Nanak Dev 21 and Punjabi 20. In Haryana, Kurukshetra produced 24 and Rohtak 15 making a total of 39. Six universities of Rajasthan produced in all 147 JRFs, Rajasthan contributing 99, Ajmer 21, Jodhpur 15, Udaipur 9 and Banasthali 2, HP University in Himachal Pradesh produced 16 and Jammu University in J & K 3. Thus the eight states of the Northern region with 40 universities on the map of JRF produced in all 1485 JRFs in these three years and in the 12 subjects mentioned earlier which is 65.65 per cent of the total 2262 awarded in the country.

Similarly six states of Tamil Nadu produced 129 JRFs Madras getting 64, Madurai 30, Bharathidasan 11, Annamalai 10, Bharathiar 9 and Sri Venkateshwara 4. Pondicherry shared only 4. In Andhra Pradesh seven universities contributed 130 JRFs, Hyderabad getting 62, Osmania 37, Andhra 18 and others between 1 and 6 only. In Kerala four universities produced 117 JRFs, 58 going to Kerala University, 35 to Calicut, 20 to Mahatma Gandhi and 4 to Mangalore University. Three universities of Karnataka contribute 28 JRFs, 13 going to Mysore, 12 to Bangalore and 3 to Karnataka. Thus 20 universities of Southern region produced 404 JRFs which constitute 17.86 per cent of the total 2262 for the whole country.

Total number of JRFs going to the Eastern region with five states and 13 universities on the map was found to be 242 (10.69 per cent of the total 2262), Orissa contributing 105, West Bengal 110, Meghalaya 16, Assam 9 and Tripura 2. In Orissa Utkal produced the highest number (93) in the state as well as in the region, Calcutta coming at second place with 66 JRFs and NEHU third in the region with 15 JRFs.

In the Western region, Maharashtra with four universities could produce only 66 JRFs, Poona and Bombay each contributing 29 and 24 respectively, others making no significant contribution. In Gujarat M S Baroda produced 9 and Gujarat University, Ahmedabad only 1. Thus the total number contrib-

uted by the universities of the Western region was found to be 76, that is 3.36 per cent of the total.

The only state of the Central region, Madhya Pradesh with 8 universities on the JRF map contributed 55 JRFs (2.43 per cent of the total), Indore getting 11, Bhopal 9, Raipur 8 with others making no significant contribution.

Concluding Remark

It may be found on comparing the results of this study based on 1990-1992 examinations and the earlier study based on 1986-88 examinations that the NET Tests are consistently giving almost the same results. Hence the consistency, reliability of the tests seems to be very high. The tests are sufficiently valid, too, for the reasons given earlier. The academic excellence of Delhi University and JNU goes unchallenged with 28.52 per cent of the total JRFs awarded in these subjects. The positions of the top 12 universities remain almost the same as they were in 1986-88 results. One very significant observation of the investigators is that the NET examinations have now become a great source of motivation for the students to study and prepare hard for the examination.

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Traditional Libraries to Automated Megasystem Needed Attitudinal Changes

Anand P. Srivastava*

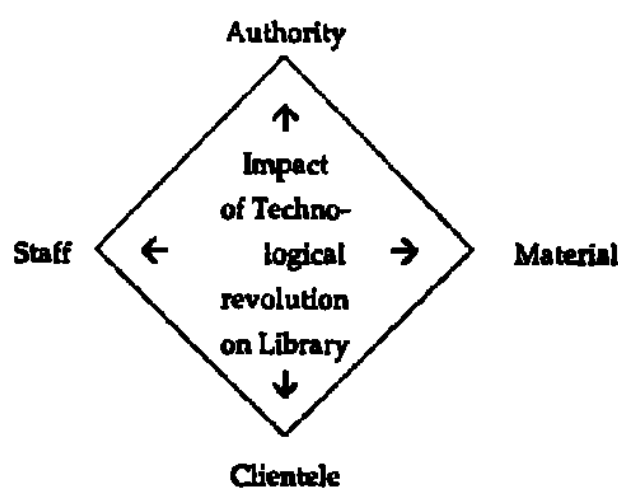
Social and technological developments have always made our institutions to change adopting new developments. The 'Library' is one such institution. How far the modern technological developments have changed the 'library' in last 30 years? This question has to be asked by all concerned, particularly by the librarians and the library authorities of the nation. In the library world, three major revolutions have taken place so far

1. During post war era (1945 to 1960s) — movement of library consortia started, e.g. BLCMP, CRL of USA (1949).

2. During 1970s — the advent of computing networks, and

3. During 1980s — development of on-line knowledge for use by library clientele.

These three revolutions demand numerous attitudinal changes in transforming traditional libraries into an automated system. The impact of these revolutions has been on all organisational sectors of library and information, viz. the library authority, the library materials, library clientele and the library staff, as the following visual shows



Some of the important attitudinal changes needed are

1. The Library has to move from the state of being merely a passive consumer of knowledge to the

level of becoming a platform for generation, exchange and utilisation of knowledge (KGEU).

2. The attitude should move from sole acquisition to collaborative access by interfacing with computer technology.

3. So far the organisation and retrieval of knowledge in libraries has been on traditional lines. Now, the new technology has brought in a quantum change, wherein retrieval is done from on-line catalogues and texts or through searching bibliographical databases.

4. From searching through a traditional library classification scheme or through a particular traditional type of catalogue, we have to move to the details of searching behaviour of users and natural language interfacing, with linguistic interpretation in a syndetic manner.

5. Earlier, users used to identify their materials themselves from an organised library. Now, the librarian has become *de facto* intermediary between the user and the knowledge sought. Hence, the librarian shall have to analyse and synthesise "user environment" and "knowledge environment". For this kind of task, the librarian shall have to

(i) use methods from communication theory, psychology, knowledge classification and sociology, and

(ii) develop theoretical bases of information/knowledge needs of various types of users, by going beyond "mission-oriented" and "documented-centred" approaches so that necessary postulates are developed for predicting knowledge needs of various sectors.

6. So far the librarian was the sole agent for organising and retrieving knowledge. Now this traditional role is being gradually replaced by that of assisting users to perform on-line searching. This new role requires the librarian to impart instructions to users, through formal and informal methods, until they achieve independence.

*University Librarian, University of Delhi,
Delhi-110 007.

7. The greatest need for attitudinal changes is for the "bosses" of parental organisations of libraries with regard to fund granting, network development and on-line utility of knowledge. For example, with a non-recurring grant of about Rs. 150,000,000/- (Rs. Fifteen crores only) for on-line connection of about 300 libraries all over India and about the same amount as annual recurring expenses, the journals, which already are on on-line in the whole world, can be made available to users in the whole of India. But it is difficult to find people in power who could support this kind of planning. All are busy in applying merely a shot-gun approach in scattering funds and grants in primitive styles.

8. Our governments and educational administrators should identify the following

- (i) What models of information provision can provide access for all through commercial enterprises?
- (ii) What should be the role of nationwide libraries within the universe of information delivery to all?
- (iii) How to make the nation's major libraries as one, well knit, megasystem by liberating them from individual sovereign owners? Is individual and exclusive ownership of a library any more feasible?
- (iv) Is there any justification for categorising libraries into various types — academic, public and special?
- (v) Can we not form a corporation of all libraries in each city and connect them statewise and regionwise to make one national grid?

All these factors are important in the modern technological information society.

9. The Sixth Law — Common Corporate Authority for Libraries. The theory of evolution works not only in the case of biological life but also in the case of institutions. The library movement started with the types of libraries — academic, public and special libraries — with their vertical structure and government. Now, the cost factor, modern technology, and new communication devices have forced the conversion or metamorphosis of vertical structure and government of libraries into a horizontal structure and government of libraries and resources.

Now, the law is, libraries at one geographical place should be under one common corporate authority for rendering services to all through hook-up. You can take it as the sixth law of library science or the extension of the fifth law, as you please. But the fact is that the sovereignty of the parent institution over its library stands diluted. For example, the University of Delhi can no more have its library system as its exclusive possession. The modern librarianship is largely beyond the walls of the concerned library. Call DELNET, BOMNET, CALIBNET, or any net and hook-up of local, regional, national or international nature. It is under these vertical and horizontal dimensions that the modern librarianship shall be required to live and grow. Historically speaking, such a metamorphosis is neither strange nor unnatural. Remember that three hundred years ago we had our individual wells for water supply and individual lanterns for light supply. Today, we have a joint water supply corporation and a common electricity undertaking. Similarly, if we today have a separate Library System of Delhi University, Patel Chest Institute Library, CSIR Library, DESIDOC, INMAS Library, Solid State Physics Library, etc., all within one mile radius, nothing shall stop it tomorrow to develop into one library authority or at least a consortium. Similarly, day after tomorrow nothing shall be able to stop the emergence of Library Authority covering Delhi University, Jawaharlal Nehru University, National Physical Laboratory and other libraries in Delhi. The modern man runs multinational companies and other super organisations. Why can a Board not run information services for a city? I see no hurdles except the lack of conceptual innovation on our part. So, let us hope that our successors shall be able to run mega units of library services in the country in near future.

10. The libraries in our country had for a long time been "more or less a useless conventional accessory." In the information age, the libraries are the first essential requirement for progress, prosperity and happiness. Such a complete break away from the traditional notion about libraries and their services must transform the attitudes of people in power in all sectors of the Indian Society.

The passport for living in the world of XXI century is the ability for "independent learning" and the

visa for entry into it is acquaintance with "information technology." It is a global question today on all campuses — from Harvard to Delhi — as to which section of a university should have specific responsibility for cultivating abilities of "learning skills" and literacy of "information technology" in the youth. It is a university graduate who becomes a school teacher or goes to various other key-role positions. If she or he is equipped with learning skills (LS) and information technology (IT) during college life one can take the mission to schools and other places in society. Various subjects under the faculties of sciences, humanities and social sciences have clearly found "learning skills" (LS) and "information technology" (IT) exogenous to their disciplines and have, therefore, allocated these species to the genus of library and media centres in educational institutions. This allocation has been through unanimous resolution because there is no other claimant of these roles in educational institutions. The result is that for developing independent learning skills and for cultivating literacy in information technology the library and librarians have moved into the centre in schools and colleges.

Once the library obtained such a favourable biological mutation, the human factor (in the librarian) responsible in moving the library for such important roles is bound to obtain ratiocinative value. But, we must know how we should really work. The real attitude prevailing in our educational culture appears to be "Library is important. But the Librarian (as the prime mover of library) may not be really important. At least, she or he does not appear to be able to command that importance." We somehow forget that the librarian can help people in the following areas

- i. there is very wide range of learning resources which should be used in schools and colleges, for different ages and abilities,
- ii. teachers and students need assistance and guidance from the librarian for using these resources effectively, and
- iii. there should be a sequential programme for developing learning skills from primary to post-secondary stages, for which resources may be available for use within the institution concerned or outside the institution.

A qualified librarian, possessing the same academic credentials as teachers and others do, can

contribute in proper environment, in cultivating learning skills. The librarian can work constructively on learning skills curriculum, which contains the following

- i. ability to locate and select resources,
- ii. ability to integrate and interpret the contents in resources,
- iii. ability to communicate the acquired knowledge and understanding through general patterns. These vital attitudinal changes have to take place in our educational system in favour of the librarians.

A great deal of attitudinal changes have to take place concerning the form of materials. The hard bound printed form of documents has ruled the world for many centuries. Due to various factors, knowledge containers have obtained micro forms. The clientele of libraries shall have to develop a habit of using the modern micro forms for knowledge utilization. The miles and miles of stacking is no more possible. Millions of books can be accommodated on hard "disks". These innovations cannot be avoided for long. We all have to develop suitable notions for using micro forms of knowledge in our daily life.

These are some of the attitudinal changes that we have to bring about in ourselves in the present information age. It is necessary that the people associated with information field develop an awareness for these details.

Concept

TOP POLICY MAKERS IN INDIA

(Cabinet Ministers and their Civil Service Advisors)

KULDEEP MATHUR and J.W. BJORKMAN

Foreword by JEAN BLONDEL

The primary objective of this study is to outline an approach with which to investigate the process of public policy-making and to delineate the role of policy makers. By analysing the social background as well as professional and public experiences of Cabinet Ministers and Secretaries to the Government of India, the study examines the proposition that individuals playing institutional roles can also influence policy outcomes. Attention is focused on members of the cabinet during almost a quarter century.

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Status of Women's Education

Some Expected Changes

Rajendra Pal*
Hemant Khandoi*

Introduction

Mahatma Gandhi (1918) said "Woman is the champion of man gifted with equal mental capacities. She has the right to participate in the minutest details of the activities of man and she has the same rights of freedom and liberty as he. She is entitled to a supreme place in her own sphere of activities as many is in his." Issues concerning women have been raised from time to time by people at national and international levels. There has been a constant search for a unique policy and programme for women. The priority is given to education because education is a tool of social change through which the future of women can be shaped. Equality of sexes has been treated as the basic tenet of modern democracy, especially in the context of the Indian social reconstruction. Education is treated as an input in achieving such a status. The level of educational achievement of both the sexes indicates the level of equality existing among them. Several commissions and committees on education have highlighted the specific measures for achievement of equality of sexes in the present context.

Sex and Gender

Sex is biologically determined whereas the Gender imputes values on biological differences. One is born female or male but its one's culture which makes him/her masculine or feminine. Gender is, thus, the cultural definition of behaviour defined as appropriate to the sexes in a given society at a given time. Gender roles are hard to change but as they are socially/culturally created, they are changeable. Sex is not Gendering.

Meaning of Women's Education

Before any policy decision is made regarding women's education, it is necessary to understand the meaning of the term. One has to differentiate between Women's Education and Education for

women. This will help in stating objectives and framing curriculum of women's education. Meaning of Women's Education is to educate women, i.e. literacy percentage among women is to be increased, whereas Education for Women would mean education which suits the women community. There is slight overlapping in both the concepts. It should be clear now that to increase the literacy percentage among women it is necessary to develop such a curriculum which suits to the women community.

Need for Women's Education

In modern age the role of women has changed. Earlier the role of women was as wives, mothers, homemakers etc. But now women have started seeking employment to improve their socio-economic condition and to seek intellectual satisfaction. A woman perceives herself to be a productive and constructive unit of national development, hence the educational system must be geared to meet all these needs. The committee on Status of Women (1954) stated that "In the progressive society of tomorrow, life should be a joint venture of men and women. Men should share the responsibilities of home and women in turn should share the social and economic responsibilities of men". Although the constitution has declared the equality of men and women, no significant changes in social values and attitudes have occurred in the present context. The present society still continues to be man dominated society. There might be various reasons for such a state of affairs. One of the major reasons might be lack of literacy and awareness among women.

Liberty from Equality

Women are biologically the stronger of the two sexes. Psychologically also she is tougher and bolder to bear tensions, chaos and confusion than men. She nurtures the whole society through the role of a mother. Even then she is not in a position of getting her due in the decision making process. Two thirds of the productive work of the whole world is done by women. Interestingly, all women are working women. It is patently wrong when someone care-

*Institute of Education, Centre of Excellence,
DAVV, Indore.

lessly says that most of the women are non-working. Generally women work more than men. Their contribution in the sphere of work is unique. The nature of her traditional work is not considered a part of the standard for the formal organized sector. Therefore, many of us start believing that she is not working and she is mistakenly considered as a non-productive worker. Unfortunately, women too started believing in this oft quoted assertion, therefore it is necessary to liberate women from this wrong notion. Women must ask for empowerment and not for equality.

Towards Women Empowerment

The POA 1992 has comprehensively given the parameters of women empowerment. These are:

- enhance self-esteem and self confidence of women;
- building a positive image of women by recognising their contribution to the society, polity and economy;
- developing ability to think critically;
- fostering decision making and action through collective process;
- enable women to make informed choices in areas like education, employment and health especially reproductive health;
- ensuring equal participation in developmental process;
- providing information, knowledge and skill for economic independence; and
- enhancing access to legal literacy and information relating to their rights and entitlements in society with a view to enhance their participation on an equal footing.

Major Constraints in Women Education

There are some obstacles in the way of spreading women's education throughout the country. Some of them are:

1. Wastage and Stagnation

According to latest available data, dropout rate for girls between classes I-VIII is 70.05 per cent. The participation of girls in primary education is 29% which is below the normative percentage of about 50%

2. Low Female Literacy and Enrolment

The female literacy in India is only 39.19 per cent, whereas male literacy is 64.20 per cent. For the difference in the enrolment of females and males at the different stages of schooling we can see the following Table :

Table: Sexwise Enrolment at School Levels

	<i>Girls</i>	<i>Boys</i>	<i>Total</i>
Primary	44.9	60.5	105.4
Upper Primary	15.0	23.7	38.7
High School	7.0	13.5	20.0

It is clear from the above Table that the percentage enrolment of females is very low in comparison to that of the males. Therefore, unless and until we increase the girls enrolment in the school, we cannot think of increasing the literacy percentage among females.

3. Social Structure

In Indian families it is generally made clear to the young girls that there is a difference between the activities of men and women. Parents prepare their daughters for her role as a wife and mother, and she has to be submissive to her husband.

Even women themselves feel more satisfied and fulfilled as housewives and experience more self fulfilment in the role of mother, obedient wife/mother. This indicates a limited self perception.

4. Role of Media

T.V., Cinema, Radio etc also promote the feeling that women are weaker than men. Most of the programmes show that a woman needs the support of a man for living in the society. Newspapers also highlight the news of dowry crimes, bride burning etc. These things develop insecurity in a woman, so she tries to adjust herself with every situation at the cost of her development.

5. No fixed curriculum for Women's Education

India is a country of villages. There are different customs and traditions present in Indian society. It is very difficult to make the ideal curriculum, which fulfils the needs of different people.

6. Poverty

India is a poor country and 40% of people live under the poverty line. To earn enough money for

bread is the first priority. 70% of the women's population work on the fields. They bear dual duties of home management and earning money.

Some Expected Changes

We expect that the empowered women would change their traditional family role. Some of the current changes are conspicuous in the family setting :

<u>Traditional form</u>	<u>Shifted form</u>
extended family	Nuclear family
fulfilment through motherhood	Preference for adoption
child rearing by women	child rearing by both
traditional household	social development
dependence	independence
self denial ethic	self fulfilment ethic
live to work	work to live a quality life

An empowered woman will become more vocal, assertive, outgoing, independent, equal and ac-

tive partner, technology lover and bread earner. The empowered woman will change her role in a work situation. Instead of accepting assigned work she will create opportunities of work. She will meaningfully bargain at work. She will not adjust to uncongenial work environment. She will replace her emotional nature by a more rational and egalitarian existence.

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On Student Evaluation

(Contd. from page 2)

7. The Tamil Nadu State Council for Higher Education would prepare and make available sufficient number of question banks, generated by the colleges. AIU question banks could also be obtained and included.

8. Early steps should be initiated by the government as well as universities concerned, to get approval from Academic Council, Senate and other governing bodies, so that the scheme can be launched from the academic year 1995-96.

9. It will be valuable if all universities adopt a common pattern of grading system based on normalised scores and letter grades. This could of course, be decided after detailed discussions in the various academic bodies of the universities.

However this would require a different level and intensity of training of both the teachers and administrators. The common pattern of grading sys-

tem would help to transfer students as well as assessment, when students migrate from one university to another. This matter may be examined by TANSCH, so that it could be implemented from 1995-96.

This brief report tells us that colleges favour semester system and continuous internal evaluation. Similar findings are possible, if such feasibility studies are undertaken in other states also.

The findings prove that colleges are not averse to any innovation such as semester system or continuous internal evaluation, or credit system. But teachers need guidance and training, especially those who are not trained in techniques of evaluation. Gradually innovations need to be brought into the system and our institutions of higher education should be adequately trained to accept and practise them.

Population - Development - Environment Nexus

His Excellency Dr. P.C. Alexander, the Governor of Maharashtra delivered the Convocation Address at the thirty-sixth convocation of the International Institute for Population Sciences, Bombay. He said, "With reduction in international and regional tensions and growing recognition of global economic and environmental interdependence, the opportunities to mobilise human and financial resources for solving the global problems which have remained intractable till now have greatly increased. Never before had the world community so much resources, knowledge and technologies at its disposal with which to foster socially equitable and environmentally sustainable world development as it has today. The objective of achieving sustainable, environmentally viable and stable population can only be achieved through relevant research on various facets on the interlinkage of population with development and environment." Excerpts

Some Issues Relevant to Population Growth with Special Reference to India

The population of the world has been growing on a massive scale during the second half of the present century. World population was only about 1 billion in 1800 AD and it took 130 years (1930) to add the second billion. However, it took only 30 years (1960) to add the 3rd billion, 15 years (1975) to add the 4th billion and only 12 years (1987) to add the 5th billion. The figure of 6 billion is expected to be reached by the close of this century.

A major part of this increase has been the contribution of the developing countries. In 1950, the developing countries had about 67 per cent of the world's total population but by the turn of the century their share will rise to around 80 per cent. India's population which was only 358 million in 1950 is expected to cross the

1 billion mark by this time.

The cruel balance between births and deaths maintained by pestilences and killer diseases like malaria, cholera, small pox, etc. is fortunately no longer there and people everywhere now lead healthier and longer lives compared with the situation in the early decades of the century. Statistically speaking the rate of population growth has come down from 2.5 per cent per year in the early 60's to about 2 per cent currently. But the base is so large that the reduced rate of growth has very little impact on the population scenario. Forecasts by experts show that world population may reach 12 or even 14 billion before it stabilises. This causes serious doubts about the adequacy of food supplies, the safety of the environment and the prospects of social and economic development. New problems like the massive influx of people into urban areas have also caused misgiv-

ings about the ability of developing countries to cope with such problems consistent with the requirements of environment and development. These problems have been engaging the active attention of expert groups, UN organisations and institutes such as yours for some years now. I shall however, try to underline a few issues and also raise a few questions in an effort to further stimulate discussions on them.

Population Growth and Food Supplies

The first question that arises in this context is whether the earth will have the nutritional capacity to sustain the projected levels of population growth. Take the case of our own country. So far we have been able to keep the rate of food production above the rate of population growth, but the question is how long can we continue to do so. The growing population has resulted in the fragmentation of the finite land resources into inviable holdings lowering the per capita arable land from 0.33 hectare in 1971 to a mere 0.18 hectare projected for 2000 A.D. It is estimated that by the turn of the century the country may require an additional 10 million hectares of net sown area, 40 million hectares for fire woods and 10 million hectares for fodder. Additional area of 4 to 5 million hectares will be required for such uses as human settlements, roads, railways and mines, defence and industrial establishments. The need for production of food, fodder, fibre and fuel will put severe competing claims on the limited land available. Water logging, salinity and alkalinity of soils will further constrain the growth of net sown area.

In the past increases in the net sown area were brought about by converting forest areas, but there is no more scope for such conversion as India's forest coverage has already been depleted to danger levels. At the turn of the century about 40 per cent of India's land was covered by forests. Now forest cover is less than 25 per cent according to most estimates. A disturbing feature about forests cover in India is that 3/4 of it is concentrated in the Himalayan range and the North Eastern region and in a few States like Madhya Pradesh, Maharashtra, Orissa and Andhra Pradesh. Annual forest growth in India is only 0.5 cubic metres per hectare while the world average is 2.1. It is estimated that deforestation takes place at the rate of 262 m. cubic metres per year in India while new forests cover produced per year is only 32 m cubic metres. Any further depletion of the forest cover for conversion into agricultural use will obviously be suicidal.

Another important aspect of the problem of food supplies in India is that the current levels of caloric intake are unacceptably low. Our daily caloric supply is only 2100 as against 2600 in China and 3000 in the upper middle income centres. Caloric supplies have to increase by at least 50 per cent in order to maintain adequate health standards. If this target is to be reached, India's food production has to increase two times from the present level to feed a population of 1 billion. Will it be possible to increase food supplies even at a reduced rate of caloric intake without seriously damaging the environment and the finite resources of the earth? Irrigation potential in most Indi-

an States has been almost fully utilised and new irrigation projects are likely to prove to be highly cost ineffective. About 1/3 of India's land is already degraded because of erosion, overgrazing, etc. It is estimated that about 2.5 million hectares are becoming wastelands and about 1 million hectares are getting degraded every year.

Taking these hard facts into account the prospects of increasing food supplies to meet the projected levels of population growth and caloric supplies appear frighteningly depressing. Technological improvements in food production may prove Malthus wrong in his theories about the inevitability of poverty and the geometrical increase of population and the arithmetical increase of food supplies, but for a large country like ours with a population which will exceed 1 billion by the end of this century, the danger of food supplies failing to cope with population increase appears alarmingly real. Does it then mean that a country like ours will not be able to retain its self reliance in food supplies and has to depend on food production elsewhere to meet the demands of the growing population and the minimum levels of caloric intake? The implications of this dilemma require serious consideration by our planners.

Population Growth and Environment

The vast expansion of population during the last half a century has sharply brought into focus the serious dangers posed to environment by this problem. A multitude of environmental problems such as deforestation, desertification, soil erosion, silting

of rivers, impoverishment of important flora and loss of biodiversity, depletion of non-renewable resources, global warming and pollution of air, water and land, has been thrown up by this phenomenon of population explosion, defying easy solutions.

The fertile soil of many countries is being eroded much faster than what nature can replenish. It is estimated that each year an additional 6 million hectares of productive drylands turn into desert. The emission of Carbon dioxide has increased to about 6.8 billion tonnes in 1985 from 2.4 billion tonnes in 1950 thus registering an average annual increase of 3.1 per cent. During 1970s and 1980s, the quantum of per capita arable land declined by 1.9 per cent a year due to a population growth necessitating the application of fertilisers and pesticides at unreasonable rates to cope with the needs of a growing population.

Population factor is contributing significantly to environmental degradation in many third world countries because of the growing demands for fuel, fodder and timber. According to one estimate, one per cent increase in population is associated with an increase of 0.5 per cent of deforestation in the third world. The deforestation rate in developing countries is estimated to be around 1 to 1.5 per cent per annum.

Population growth and redistribution, especially migration to cities, have caused serious shortages of water in most developing countries. Human consumption of water has doubled in this century, and it will double again with the expected increases in population during the next de-

cedes. It is estimated that as many as two billion people live in areas with chronic shortages, with the water often contaminated by pollutants. Even though rapid population growth is a major cause for the impoverishment of the environment, it will be wrong to consider population growth as the sole factor. It is a well accepted fact that many of the present day environmental problems, particularly global warming, industrial pollution, etc, have their roots in the affluence and the high consumption levels of the people in the developed countries. Even the resources of many of the poor countries are greatly affected by the material demands of rich countries. It is estimated that the developed countries with just around 20 per cent of world's population consume nearly 80 per cent of world's resources. The average person in the developed world uses at least 30 times as much resources as the average person in the least developed world. Thus, a child born in a country, where levels of material and energy use are high, places a far greater burden on the earth's resources than a child born in a poor country.

The industrial countries have already used much of the planet's ecological capital. According to the report of the World Commission on Environment and Development this inequality in consumption is the main 'development' problem. It is widely recognised that economic development issues cannot be separated from environment issues. Many forms of development prevalent in the developed countries and which developing countries are now trying to copy erode the environmental resources upon which they must be based. Envi-

ronmental degradation, in turn, undermines economic development.

It is also clear that the life styles as well as the development styles of the Western World are not sustainable. Unfortunately many developing countries particularly those which have already achieved demographic transition are also adopting the same energy-intensive heavy industrialisation phase and the same affluent life-style. The question is whether these countries will have the technological and financial resources to remedy the environmental damage caused by them.

India's problems relating to environment are the same as those of most developing countries namely depletion of natural resources, degradation of soil and contamination of air and water. For India, the problem is becoming more acute because of the massive industrialisation process that is going on all over the country. The crucial question is whether India will draw the correct lessons from the experiences of other newly industrialising countries and take remedial measures in time to prevent the problem from getting out of hand as has happened in some of these countries.

Population Growth and Urbanisation

In this context, it will be worthwhile to refer briefly to some issues relevant to urbanisation caused by the massive movement of people from rural areas to towns and cities. There is a popular misconception that urbanisation is incompatible with environment and development. The truth is that urbanisation by itself is not the enemy of environment or development, but unplanned urbanisation can be.

Developing countries have to accept the fact that urbanisation has become an almost irreversible and unavoidable process because of the compulsions of social and economic changes. They have to devise appropriate policies and programmes to cope with this situation instead of trying to deal with it in an *ad hoc* manner as is being done at present.

Agriculture in developing countries is going through a process of technological modernisation which is causing large scale displacement of labour. Human labour is being rapidly replaced in what used to be highly labour intensive operations like ploughing, sowing, harvesting, etc. Further, because of the pressure of population, land in rural areas can no longer sustain the entire labour force available there and rural people therefore have to look for new areas and new sources of employment. Another important reason for the movement of people to urban areas is that 'services' are mostly urban based. Already about 50 per cent of the GDP of developing countries is generated in towns and cities and this figure is likely to increase to 67 per cent by the end of the century.

Urbanisation has to be accepted as the manifestation of a synergic process of economic, scientific, technological and social changes which have taken place in the 20th century which has been correctly described as a "century of urban transition". By 1920 only 14 per cent of the developing countries' population was urban, but by 1950 the percentage of urban population increased to 25 per cent and by 1980 to 40 per cent. By the end of the present century it will be 50 per cent and it is expected that by 2030 the

number of people living in urban areas in developing countries will be double of that in rural areas.

The process of large scale migration of people into urban areas is causing serious problems to the developing countries because of the limited facilities of housing, transport, water, health care, etc. in these areas. The problems of dust, smoke, noise, carbon dioxide, etc make life in the urban areas in developing countries unhealthy and unsafe. However many of the evils of unplanned urbanisation and inadequate infrastructure can be mitigated if developing countries adopt appropriate policies and priorities to cope with them instead of merely continuing to treat urbanisation as an evil to be avoided, if not resisted.

Population Growth and Women

I shall briefly refer to one more issue relevant to population growth in India before I conclude and that is the role of women in tackling this problem. It will be wrong to think of population control in terms of the statistics on sterilisation and contraception. Even for the success of sterilisation and contraception, leave alone other relevant programmes, there has to be more active and intelligent cooperation and involvement of women, and this will be possible only through greater attention to women's education and providing better status to women in our society than what is now being accorded to them. It is a sad reflection on our development efforts that the majority of women are still illiterate in large states like West Bengal, Karnataka, Haryana, Orissa, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh, Bihar

and Rajasthan. In Madhya Pradesh, Uttar Pradesh, Bihar and Rajasthan more than 70 per cent women are illiterate. The lack of education among women is clearly reflected in their high fertility rate. Total fertility rate in 1991 is between 4.5 and 5 in Uttar Pradesh, Rajasthan, Madhya Pradesh and Bihar where the level of women education is very low while it is below 2 in Kerala and 2.2 in Tamil Nadu where women education is very high. If women have to be motivated to join the drive for small and healthy families, they have to be given the benefits of education which alone can ensure their willing and intelligent involvement in these programmes.

Increasing the age at marriage of girls is another important factor in population control, more important than motivating them to use contraceptive or to undergo sterilisation. The average age at marriage for girls in Rajasthan, Madhya Pradesh and Bihar is less than 17 and in Andhra Pradesh, Uttar Pradesh and Haryana it is less than 18, though the statutory age for marriage of girls is 18! In Kerala where women education and literacy are the highest, the average age at marriage for girls is 21.9 years. The Kerala example has clearly demonstrated that the success of population control

programme depends largely on the voluntary involvement in such programmes by women and that this comes mainly through the education of girls.

This decade is the period of great challenges. With reduction in international and regional tensions and growing recognition of global economic and environmental interdependence, the opportunities to mobilise human and financial resources for solving the global problems which have remained intractable till now have greatly increased. Never before had the world community so much resources, knowledge and technologies at its disposal with which to foster socially equitable and environmentally sustainable world development as it has today. The objective of achieving sustainable, environmentally viable and stable population can only be achieved through relevant research on various facets on the interlinkage of population with development and environment. Graduates of this Institute have to play key roles to examine the population-development-environment nexus in their countries and help the policy makers to evolve sustainable development and population policies in which the dignity of human being is preserved and the quality of life is secured.

Excerpts from the Presidential Address

by

V.K. Shunglu

**Secretary to the Government of India
Department of Family Welfare**

Population is not numbers alone: it is the relationship between humans and their environment. Unfortunately, numbers

continue to burgeon in developing countries with inadequate natural endowment. Population growth has thus become an added burden on our developmental efforts because the gains of development are neutralized significantly by increase in numbers. While we have been committed to decelerating the growth of population, the success of Family Welfare Programmes during the last four decades has not been in keeping with our goals. The goal of reaching replacement level fertility by the end of the century has been deferred by a decade or more due to slower decline in fertility during the Eighties because of momentum of population growth.

It has also become clear that the efforts of Government alone cannot achieve all that we aspire and the participation of the people is essential to ensure success. The 73rd and 74th Amendments to the Constitution of India, recently enacted by the Parliament, will help to effectively decentralize power to people at the village, intermediate and district levels. One of the important functions devolved on the Panchayats is family welfare. The decentralization of political and administrative power has the potential for making family welfare a people's programme. The State Ministers of Health must, therefore, take action to assign management of the rural Health Care System to the Panchayats.

There has also been a change in our population policy, which now aims to provide family planning within a broader context of maternal and child health care, emphasising voluntarism, an informed choice among contraceptive methods and popular participation. In keeping with the demo-

cratic traditions of the country, the Government has played the role of a facilitator by establishing a vast infrastructure for providing primary health services including family planning. The emphasis has been on promoting information, education and communication on the advantage of a small family, thus, improving the quality of life of the people.

The Family Planning Programme has helped in increasing the number of couples effectively protected by various methods from a mere 10 million in 1970-71 to 64 million in 1990-91. Since inception, the programme is said to have averted about 155 million births till March 1993. In absence of the Family Welfare Programme, the annual growth of India's population might have been around 2.71 per cent instead of 2.11 per cent as reported for the decade of 1981-91 and currently estimated at 1.9 per cent per annum.

It is disquieting to note that participation of men in family planning is on the decline. No doubt, it is important to emphasize the role of women in our developmental efforts; I would, nevertheless, like to focus on the importance of men in relation to family planning. Special efforts are required to reiterate men's shared responsibility and promote their active involvement in responsible parenthood including family planning. High priority should be given to development of fertility regulation methods for men as well as on identification of factors inhibiting male participation.

Another area of concern is continuing adverse female to male sex ratio. This is a complex

issue and the factors which have contributed to this phenomenon are not fully understood. This aspect of demography is not only a matter of curiosity but also of dissatisfaction. A prestigious institution like this Institute may well come up with more adequate explanation of the causes and consequences of this phenomenon.

The experience of implementing family planning programmes in various countries has conclusively proved that population growth is directly related to such factors as female literacy, age of marriage of girls, status of women, mother and child care, quality of out-reach of health and family planning services and other socio-economic parameters. In other words, investing in human resources is crucial to the success of population programmes. India has made notable achievement in all these parameters. The Infant Mortality Rate has declined from 146 in 1951 to 79 in 1992. The literacy rate of those aged 7 years and above has increased from 18 per cent to 52 per cent during the corresponding period. Significant improvements in the economic condition of people have also been noticed. The proportion of population living below poverty line has declined from about 51 per cent in 1973-74 to about 30 per cent in late eighties. Several measures for economic reforms, taken recently, are expected to further accelerate the economic growth. Financial outlays for poverty alleviation programmes and other social sector programmes have been enhanced.

While comforting ourselves in the achievements made so far, we cannot over look the significant inter-state and inter-district variations in the social param-

ters which have a bearing on population growth rates. The States like Kerala, Tamil Nadu and Goa have already reached the replacement level of fertility. On the other hand, families in rural areas of Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh continue to have, on an average, five children. This is reflected in similar variations in crude death rates, infant mortality rates and education levels. Female literacy varies between 20.8 and 28.4 in the four states compared to 86.9 per cent in Kerala and above 50 per cent in Maharashtra, Punjab and Tamil Nadu.

Several initiatives have already been taken to enlarge the programme in such areas. The challenges in creating effective demand for family planning services through proper information, education and communication and simultaneously meeting the demand through provision of good quality family welfare ser-

vices. At the same time, social transformation needs to be brought about through convergence of all relevant sectoral programmes that contribute towards improved quality of life and create necessary conditions for decelerating population growth rate. Action research would also be required in these areas to enable us to improve programme management. A greater stress on human development is essential to achieve economic growth which in turn is necessary to maintain welfare.

George Bernard Shaw said that "the worst sin toward our fellow creatures is not to hate them but to be indifferent to them". At the threshold of the 21st century, we can no longer afford to be indifferent specially when we are convinced that human development alone will lead to sustainable development and make our planet a hospitable place for all human beings.

Excerpts from the Report

by

K.B. Pathak

Director

International Institute for Population Sciences, Bombay

Teaching Programme

Regular Instructional Courses

During the year 1993-94, the Institute offered 4 regular courses of one year duration each, viz. (a) Diploma in Population Studies (DPS) (b) Master of Population Studies (MPS), (c) M.Phil. degree programme in Population Studies, and (d) Diploma Course in Health Education (DHE). In ad-

dition to the above courses, the Institute continued its Ph.D. programme.

Ad-hoc Short-Term Training/Instructional Courses

(a) Software Training

As a part of MOHFW's Project to Strengthen the Survey Research Capabilities of the Population Research Centres (PRC Project), the Institute organised a

two-week *Training in the use of Software Packages in Personal Computers*. The training was conducted in the use of SPSS, Lotus, Word Perfect, Harvard Graphics and Norton Anti-Virus packages.

(b) ISS Probationers Training Programme

At the request of the department of Statistics, Ministry of Planning and Implementation, Government of India, New Delhi, a two week training programme on "Life Tables and Population Projections" was organised for the XIX Batch of ISS Probationers. Besides the general lecture on mathematical models in demographic analysis with special reference to life tables and population projections, lectures were also organised on computer software packages MORTPAK LIFE and PEOPLE.

(c) Training Programme for JCCS Participants

The institute organised a 3 day Training Programme for the participants of the Junior Certificate Course in Statistics (JCCS) from the Central Statistical Organisation (CSO).

(d) Computer centre organised two training courses of one week duration each on 'Word Perfect' to IIPS Faculty and Staff members.

(e) A Computer Software Training Programme "Integrated System for Survey Analysis (ISSA)" was organised for Data Analysis, Data Entry and Editing of Survey Data at the Institute during November 30 to December 17, 1993.

(f) For the 5 percent Post-survey check of National Family Health Survey, a training programme was organised for the officials of the Institute for Research in Medical Statistics (IRMS), New Delhi.

Research Programme

Twelve Research Projects were completed by the Faculty of the Institute during the current academic year, while twenty Research Projects are in different stages of completion.

National Family Health Survey

The data collection for the National Family Health Survey in 25 states was completed in August 1993. In the second phase of the project which is called the Data Analysis and Report Writing Phase, Comprehensive reports of the NFHS results are being produced for each state and for the country as a whole.

Population Data Center

Population Data Center has been set up with an objective of maintaining the data sets procured in various local and national demographic sample surveys conducted throughout the country, so that the users of these data can easily avail the data along with the necessary documents relating to these data sets.

The following data sets along with the necessary documentation have been procured for the Data Center.

i) Baseline survey data for Orissa, Maharashtra, Goa, and Bihar

ii) Migration survey in Greater Bombay

iii) Growth and Re-distribution of Population in New Bombay

iv) Evaluation of National Population Education Programmes

v) 1991 Census data for all the villages in India.

vi) The preparations are on

for obtaining the data of the Demographic and Health Surveys (DHS) for the countries for which the data are collected. The World Fertility Survey (WFS) data will also be procured for the Data Center.

Efforts are on to have network with NICNET, National Informatics Center of Bombay, so that all the census and population related data can be accessed through this network at the center.

Department of Extra Mural Studies and Distance Education

A new Department of Extra Mural Studies and Distance Education has been started at the Institute, from August, 1993. The Institute has launched a Correspondence Course on Population Studies of one year duration, leading to Masters Degree in Population Studies. The Course is primarily intended for officials and

personnel who are involved in teaching, training and research in population studies in various government departments, non-governmental organizations, Universities/colleges, and who have not got opportunities for any formal training in population studies.

Six workshops were organized by the Department of Extra Mural Studies and Distance Education during October and November, 1993 to write self instructional materials on

(i) *Population and Development, and Population Policies and Programmes*

(ii) *Techniques of population Analysis*

(iii) *Research Methodology, and Indian Society, Culture and Economy*

(iv) *Population Dynamics*

(v) *Biostatistics and Population Education*

(vi) *Statistics and Mathematics.*

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CAMPUS NEWS

Cd-Rom/Online Users Meet

The Third National Meet of CD-ROM/Online Users was sponsored by National Information System for Science and Technology (NISSAT), Department of Scientific and Industrial Research (DSIR), New Delhi and organized by National Information Centre for Leather & Allied Industries (NICLAI) at the Central Leather Research Institute, Madras during August 9-10, 1994. Its objective was to assess the current national and international situation, the utility of the CD-ROM services, their popularisation within the country, and to provide a forum for exchange of experiences on this new technique. The meeting focused its attention on databases available, demand for search services, target users, problem areas and possible solutions.

At the inaugural session held on 9th August 1994, Dr. T. Ramasami, Senior Deputy Director, Central Leather Research Institute, welcomed the participants and highlighted the need for the change of Information Services Scenario on account of developments taking place in Computer & Communication Technologies and the storage media like CD-ROM which could be the best solution in the future. Dr. A. Lahiri, Joint Advisor, NISSAT, DSIR, New Delhi outlined the objectives of the meet and the opportunities it offered to both buyers and sellers of information for coming together and discuss each others requirements and problems. He stressed that duplication in the acquisition of CD-ROM

databases should be avoided to save valuable foreign exchange.

Prof. M. Anandakrishnan, Vice Chancellor, Anna University, Madras, who delivered the keynote address, emphasized the viability of CD-ROM technology and advocated resource sharing due to its cost factor. He opined that information services should not be restricted to urban areas, but should be extended to rural areas.

Mr. S. Subba Rao, Assistant Director, Information Science, CLRI and the convenor of the meet highlighted the achievements of the two previous meets as Increase in awareness on the online CD-ROM technology in the country; Extension of custom duty exemption upto 15% *ad valorem* to R&D institutions and those not engaged in commercial activities; Awareness of the users to secure fair prices for the CD-ROM equipment/databases from the vendors by way of direct negotiations and availing of possible discounts like multiple copies, educational, etc; Improved knowledge about the modalities for procurement of CD-ROM Database through Pass Book Scheme; and Initiation of activities towards rationalisation of subscription to CD-ROM Databases in metropolitan cities.

The meet was organized into seven technical sessions on the themes: (i) CD-ROM scenario pertaining to Databases and Services in Business, Physical and Engineering Sciences including Patents and Standards; (ii) CD-ROM scenario pertaining to databases

and services in Biomedical and Allied Sciences (Biotechnology, food sciences, full text databases, library applications, retrospective conversion); (iii) CD-ROM acquisition and copyright issues; (iv) CD-ROM hardware/Software and Networking; (v) CD-Publishing and CD-ROM applications; (vi) Online Scenario; and (vii) Company Presentations.

The concluding session was chaired by Dr. N.V.C. Swamy, Director IIT, Madras, who gave away the prizes for the three winners on the CD-ROM/Online Quiz sponsored by Informatics Group. Dr. Swamy remembered his research days of obtaining information manually when compared to the recent developments in Information access. He felt that networking of libraries was mandatory for effective information dissemination.

Prof. P. Soma Raju, Andhra University, Waltair was the Rapporteur General while Ms. Kamini Mishra, NISSAT, New Delhi, was the co-convenor of the meet.

The meeting was attended by 205 participants from 91 institutions all over the country representing a galaxy of R&D, academic, corporate, entreprenuring institutions, etc. Eleven information industries engaged in IT products participated in the meet.

Improving Office Services

The Centre for Work Study in Educational Administration, Panjab University, Chandigarh proposes to organised a two-week training programme on "Impro-

ing Office Services" during 20-30 October 1994.

The contents of the programme aimed at Office Assistants, Clerks and other officials of the same/higher rank from various universities and educational institutions in India, will include Office and its significance; Improving Methods of Work and Procedures in Office; Planning and Controlling Office Work; Management Information System; Records Management and Filing System; Forms Designing; Handling Mail; Effective Writing; Fundamentals of Accounting; Examination Reforms; Providing support to Disciplinary Proceedings; Arranging Meetings; Resistance to Change; Morale and Motivation; Public Relations; Fundamentals of Electronic Data Processing etc.

The Centre also proposes to organise the 9th Training Programme on "Records Management and Filing System" on 5-11 October 1994 for officers and officials from various universities and educational institutions in India.

The course contents may include — What is Records Management? Records Management and Management Information System; Classification of Records; Filing System; Records Retention and Retrieval; Development of Record Retention Schedule; Location of Records; Centralisation vs Decentralisation of Records; Storage and Preservation of Records; Security of Records; Layout of a Record Centre; Forms Designing; Records Management and Electronic Data Processing; etc.

Further details can be had from Shital Parkash, Honorary Director, Centre for Work Study

in Educational Administration, Panjab University, Chandigarh-160 014.

Sex Education and Morals

The belief that sex education in schools leads to early sexual activity in young people has been totally negated by a survey of the World Health Organisation's (WHO) global programme.

The survey on AIDS, which considered 35 studies in the US, Europe, Australia and Thailand, found no evidence that sex education in schools leads to earlier or increased sexual activity in young people. The findings are considered particularly important because the WHO global programme on AIDS estimates that to date at least half of those infected with HIV worldwide were young people between 15 and 24 years of age, according to 'State of World Population Report 1994'.

The survey also indicated that sex education can help protect teenagers from some of the risks of sexual activity. The WHO advises that "a range of options should be offered to young people, including postponing first sexual activity and, for those already sexually active, the use of condoms for protected intercourse." The findings of the survey show that sex education increased the adoption of safer sexual practices in active youth. It also revealed that access to counselling and contraceptive services did not encourage earlier or increased sexual activity.

The survey shows that sex education is most effective when given before a young person becomes sexually active. Program-

mes which promoted both postponement of sex and protected sex were most effective than those which promoted abstinence alone. The impact of sexual initiation plays out differently for young women than for young men, and adolescent girls' ability to make healthy decision.

Ranbaxy Awards in Medical Sciences

Prof. P.S. Sastry, Chairman, Department of Chemistry, Indian Institute of Science (IIS), Bangalore, has won the Ranbaxy research award in the field of basic medical sciences.

Dr. Shama C. Bhat of the Department of Neurology, University of Pennsylvania, Philadelphia, has bagged the award in the field of applied medical sciences.

The third award — in the field of pharmaceutical sciences — has gone to Prof. K.R.K. Easwaran, Chairman, Molecular Physics Unit, IIS. The awards, instituted by the Ranbaxy Science Foundation, include a trophy, citation and a cash award of Rs. 50,000.

While Prof. Shastry has made significant contribution in studying the metabolism and biological function of Vitamin A, Dr. Bhat is credited with research on the understanding of pathogenesis and treatment of HIV infections. Prof. Easwaran has succeeded in generating a process for designing a novel drug molecule which could be an effective anti-fungal agent.

Nominations were evaluated by a panel headed by Dr. V. Ramalingaswami, Professor Emeritus, All India Institute of Medical Sciences (AIIMS).

The Ranbaxy research

awards were instituted in 1985 and cover aspects of medical and pharmaceutical research.

Molecular Spectroscopy and Lasers

The Department of Physics, Banaras Hindu University, Varanasi, proposes to organise in collaboration with the Laser and Spectroscopy Society of India a three day Symposium on Molecular Spectroscopy and Laser on November 26-28, 1994. The areas proposed to be covered in the symposium will include recent developments regarding the molecules using different experimental techniques of spectroscopy and lasers, theoretical techniques elucidating molecular structure, properties and interactions, studies of molecules of biological and astrophysical importance.

Further information can be obtained from Professor Nitish K. Sanyal, President, Laser and Spectroscopy Society of India, 18A, Nyaya Marg, Allahabad - 211001 or Dr. P.C. Misra, Secretary, Laser and Spectroscopy Society of India, Department of Physics, Banaras Hindu University, Varanasi-221005.

ASC Directors Meet

The meeting of the Directors of Academic Staff Colleges in India was recently held at Andhra University. Convened by University Grants Commission the meeting was inaugurated by Sri P.K. Doraiswamy, I.A.S., former Chairman, A.P. State Council of Higher Education and presided over by Dr. M. Gopalakrishna Reddy, Vice-Chancellor, Andhra University. 40 out of 45 Academic Staff Colleges were represented at the meeting. Prof. K.S. Chalam,

Director, Academic Staff College, Andhra University acted as the Convenor of the meeting.

Dr. P.H. Sethumadhava Rao, Joint Secretary, University Grants Commission who represented the Commission, presided over the plenary session. Among the important issues that came for discussion included autonomy, status of Academic Staff College, curriculum development, preparation of reading material, orientation of research guides etc.

The meeting was fruitful for the participating directors both in terms of academic sharing and administrative understanding.

Prof. Chalam reported that 72 thousand lecturers have been trained so far in the country by Academic Staff Colleges.

Kurukshetra University Regional Centres

Kurukshetra University has set up two postgraduate Regional Centres, one at Hisar and the other at Sirsa. Both centres have become functional from the 1993-94 academic session.

These centres would offer job-oriented courses. M.Sc. courses in Mass Communication and Environmental Science have been started at the Postgraduate Regional Centre, Hisar, from this academic session. An LL.B. course has been launched at the Sirsa centre.

The university had also taken steps to introduce M.Sc. courses in Applied Mathematics and Industrial Chemistry and a Master of Business Economics (MBE) course.

Educating Veiled Muslim Women

To reach the veiled Muslim girls and women living in narrow lanes of old parts of Uttar Pradesh towns, the Aligarh Muslim University (AMU) has drawn up a project to offer Muslim women distance education, correspondence courses, counselling and guidance on issues which are directly relevant to them.

According to Najma Akhtar, Controller of Examination, AMU, the aim is to generate an awareness among Muslim women, ranging from health and hygiene to their political rights and duties.

She said that the advantages of the proposed distance learning project are many—delivering the goods in their homes which would not abruptly upset the traditional Muslim social fabric. Nor would it draw unnecessary attention of the quarters opposed to Muslim girls studying in co-educational institutions. In terms of requisite resources, it would not be a drain either, for a large number of experienced and competent faculty members of AMU are attached with the programme.

She said that the next stage of this project would be practical training which will be provided to Muslim women to impart some skill which, in turn, would ensure a supplementary income for the family.

National Computer Institute

Addressing a well-attended public meeting on the occasion of Rajiv Gandhi's 50th birth anniversary, Prime Minister P.V. Narasimha Rao announced the

Government's resolve to set up a national institute of computer and allied technology in the name of late Rajiv Gandhi. Mr Rao said the proposed institute would be one of the most prestigious institutes in the world with known experts in the field. It would be an autonomous body fully funded by the Ministry of Human Resource Development.

He said an estimated Rs 40 crore would be provided for the institute for the remaining two years of the Eighth Plan period.

Mr. Rao said that computer and high technology had been a priority subject with Rajiv Gandhi as he felt that these aided development. In tribute to his memory it had been decided to set up the national institute.

New Courses at Dibrugarh Varsity

The Academic Council of the Dibrugarh University is reported to have approved the recommendations of the undergraduate board to introduce 'Bodo' as a Modern Indian Language (MIL) in the BA and BCom course of the university from the current academic session.

The Council also approved proposals for introducing vocational subjects in the first year degree course under schemes as approved by the University Grants Commission (UGC), from the current academic session.

Subjects approved for vocational training during the first year of degree course would include communicative English, functional Hindi, Archaeology and Museology, Computer Applications, Office Management, Secretarial Practice, Advertising,

Sales Promotion and Sales Management. Syllabi for these vocational subjects have also been approved by the Academic Council.

Regulations for the two-year, integrated diploma course, in the 'Tai' language were approved. This course is offered by the Dibrugarh University alone in Assam.

Sadbhavana Diwas Celebrations

Late Prime Minister Rajiv Gandhi's 50th birth anniversary was observed on 20 August 1994 as Sadbhavana Diwas. The programme, organized by the Department of Youth Affairs and Sports, Ministry of Human Resource Development, in collaboration with the Association of Indian Universities (AIU), was graced by the Prime Minister Shri P.V. Narasimha Rao as the chief guest. Shri Arjun Singh, Human Resource Development Minister and Shri Mukul Wasnik, Minister of State, Ministry of Human Resource Development were also present on the occasion.

A mass Sadbhavana Day pledge was administered to those present exhorting them to work for the emotional oneness and harmony of all the people of India regardless of caste, creed, region, religion or language.

A cultural show comprising group songs and folk dances was presented by about 80 artists drawn from four universities. The two group songs were presented by the students of Dayalbagh Educational Institute, Agra. The 15-member team had topped in the recently concluded Inter University National Youth Festival held at the Kurukshetra University. They presented the

Sadbhavana songs on the theme of mutual goodwill and national integration. Banasthali Vidya-peeth, Banasthali presented the Geendad Folk Dance — a community folk dance of Shekhavati (Rajasthan). People of all communities take part in it. It starts 15 days before Holi and ends with the burning of Holika. Moonlight adds to the beauty of this dance. Geendad is performed throughout the night for two to three days before Holi. On the day of Dulhandi, all the women dancers perform this dance with Daph, flying gulal.

Punjabi University, Patiala presented the Bhangra Folk Dance. Punjab, the land of five rivers and fertile fields, produces large quantities of wheat and rice for the country. This dance is performed by the farmers after harvesting is over, to celebrate with joy the fruit of their labour and hard work. Vigorous movements and simple acrobatics are accompanied by the drums' beat.

Bharathidasan University, Tiruchirappalli regaled the audience with Karagam — one of the most fascinating folk dances from the southern part of India, performed particularly in the state of Tamil Nadu. The dance refers to the flower-decked pot carried on the head as part of worship. The dance includes several acrobatic skills which are performed on the enchanting rhythm of the folk instruments.

ICORG - 94

Jawaharlal Nehru Technological University, Hyderabad proposes to organise the International Conference on Remote Sensing and GIS (ICORG-94) on December 3 - 6, 1994 at Hyderabad.

The Conference is being sponsored amongst others by All India Council for Technical Education, New Delhi; EOSAT - U.S.A.; Indian Space Research Organisation, Bangalore; National Remote Sensing Agency, Hyderabad; Pacific Ocean Remote Sensing Conference (PORSEC), Japan; Advanced Marine Science and Technology Society (AMSTEC), Japan; National Institute of Science Technology and Development Studies (NISTADS), New Delhi; International Society for Photogrammetry and Remote Sensing (ISPRS), USA; Remote Sensing Instruments, Hyderabad.

The focal theme of ICORG-94 will be Remote Sensing and GIS for Environmental Planning. Panel discussion on "Education, Training and Curriculum Development in GIS" will be arranged during ICORG-94. ISPRS working Group II/5 is considering to arrange a working Group meeting during ICORG-94. Half a day special session on Geomatics and related issues will be arranged by experts from Canada. Tutorials on Geographic Information Systems are also proposed. The faculty for these tutorials will be drawn from JNTU, Department of Space, Department of Science & Technology and Survey of India. The GIS tutorials will precede the ICORG-94 viz., on 1st and 2nd of December, 1994.

An exhibition by manufacturers, service companies and other commercial enterprises is also proposed to be organised for the display of Remote Sensing data interpretation equipment, Peripherals, Computer Hardware and Software products, Photo-processing equipment, Photogrammetric and Satellite data interpretation equipment.

Further details can be had from Prof. I V Muralikrishna, Programme Director, ICORG-94 Secretariat, Jawaharlal Nehru Technological University, Mahavir Marg, Hyderabad-500 028, A.P., India.

National Institute for Pharmaceutical Education

A National Institute of Pharmaceutical Education and Research (NIPER) is proposed to be set up in Punjab. This was stated by Minister of State for Fertilisers Eduardo Faleiro in a written re-

ply in the Lok Sabha.

The institute will be located at SAS Nagar (Mohali) near Chandigarh. A plot of land measuring 52 hectares has been made available, free of cost, by the Punjab Government.

The estimated outlay for the project is Rs 25 crore. The main objective of the proposed institute is to provide for training, instructions and research in various branches of pharmaceutical sciences and technology and in allied disciplines.

News from Agricultural Universities

Protecting Cotton Crop from American Bollworm

Scientists of Chaudhury Charan Singh Haryana Agricultural University (CCSHAU) have suggested a new technique for protection of cotton crops from American bollworm. By implementing this technique, farmers can save their crops from American bollworm and get good harvest without spending any extra amount for its control. On conducting a survey in the cotton growing belt of Haryana, the scientists have observed the incidence of American bollworm in

several places.

As a control measure spray of 1-1.25 litres Ekalux 25 EC or 1-1.25 kg Sevin/Hexavin/Carbavin 50 W.P. or 1-1.25 litres Endocel/Hildan/Thiodan/Thiotox 35 EC or 1-1.25 litres Chlorpyrifos 20 EC or 1-1.25 litres methomyl 12.5 L or 750-800 ml triazophos 40 EC after mixing in 200 litres of water per acre has been suggested. Further, farmers have been advised to purchase fresh insecticides.

News from UGC

Countrywide Classroom Programme

Between 8th September to 14th September, 1994, the following schedule of telecast on higher education through INSAT-ID under the auspices of the University Grants Commission will be ob-

served. The programme is presented in two sets of one hour duration each every day from 6.00 a.m. to 7.00 a.m. and 1.00 p.m. to 2.00 p.m. The programme is available on the TV Network through-

out the country.

1st Transmission

6.00 a.m. to 7.00 a.m.

8.9.94

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10.9.94

"Bio Transfer of Metallic Pollutants : Chromium - Good or Bad?"

"Satyendranath Bose - The Scientist with a Mission"

11.9.94

"New Horizons"

"Philatelic Pleasure"

"The Week Ahead"

13.9.94

"Expansive Soils - Part II : Cracking of Building and Preventive Measures"

"Understanding Architecture - Part I : Acts of Experience"

"High Voltage Electron Microscopy"

IInd Transmission

1.00 p.m. to 2.00 p.m.

8.9.94

"Handmade Paper"

"Bio-Farming : In Dialogue with Nature"

"Paninian Linguistics - Part II"

9.9.94

"Tennessee Williams : The Humane Dramatist - 'The Glass Menagerie Revisited' - Part II"

"Crocodiles - The Living Dinosaurs"

10.9.94

"New Horizons"

"Philatelic Pleasure"

"The Week Ahead"

11.9.94

No Telecast

12.9.94

"Angular Momentum - Part II"

"International Trade Problems"

"Poultry Farming"

13.9.94

"Clouds - Forms of Condensation"

"Psychology of Prejudice"

"Revolution in Orthopaedics - Part II : Anthroscopy - A Key Hole Surgery"

14.9.94

"J.C. Ghosh : Scientist with a Vision"

"Louvre Museum"

"Fuel for Life - Part I"

Hindi Telecast

सुबह 6.00 से 6.30 बजे तक

9.9.94

"समझ सिनेमा की - भाग 9"

12.9.94

"रेगिस्तान में काला सोना - II"

14.9.94

"हिन्दुस्तानी संगीत की यात्रा - II"

News from Abroad

Laser Magnetometer

French scientists belonging to the University of Rennes and the Societe d'Applications Generales d'Electricite et de Mecanique - SAGEM (Organisation Dealing with General Applications of Electricity and Mechanical Engineering) have recently developed a device to detect magnetic fields based on a new principle.

This device consists of a gas laser and a cavity that is fitted with low-reflecting mirrors. Within the cavity, the laser has a single oscillation mode of electromagnetic waves. Under the influence of a weak magnetic field which moves according to the path of the laser, this mode splits up into two. The interference between these two modes is detectable in the form of an optical reso-

nance. The equipment being very sensitive to magnetic fields, it is capable of detecting variations in an average magnetic field (on the path of the laser) of an amplitude of about 10 microgauss. Moreover, it can work even in the presence of an inhomogeneous field (i.e. which differs from one place to the other), as against other magnetometers which are based on Nuclear Magnetic Resonance (NMR). Finally, the response time of a Laser Equipment with such changes is very short - around a hundredth of a microsecond. These characteristics can be exploited for example in geophysics, seismology and oil prospecting as, in these fields, the detection of weak or rapid changes in the local magnetic field is of great use.

BOOK REVIEW

Insightful

C Subba Rao*

B. Dayananda Rao. No Ugly Scars : An Autobiography of a Surgeon. Hyderabad, Booklinks Corporation, 1993. Pp. 226. Rs. 100/-

The book under review is the autobiography of a committed surgeon, an old practitioner of the art of healing whose integrity and honesty, devotion to duty and scrupulous observance of rules and regulations are all reflected in the warm and intimate account he gives of his experiences.

His own initial trials faced during his early career, and later, his training abroad and the man-

ner in which he was tutored by the British doctors, and much later his experiences in the medical college, academic intrigues, strikes and students' problems — all these make very interesting reading.

The author has obviously kept a journal of important events in his career and based on this, he is able to offer insightful details relating to his career as Health Administrator, Hospital Superintendent and Neuro-Surgeon and Professor and Principal of the

Medical College. His concern for the poor and his commitment to the cause of alleviating the suffering speak of an altruism which is fast declining in public life now-a-days.

The narrative is informed by the warmth of the spirit of service and sacrifice. Whether the posting was in a rural village or a mufussil town or a crowded metropolis, his own sense of duty and rectitude, equanimity and balance appear to be the same. The autobiography is punctuated by humorous anecdotes and incidents that reveal the total personality of the surgeon.

At the end of it all, one feels that the country is in dire need of such *conscientious* medical practitioners whose loving care and commitment should be emulated by all doctors.

*Rector, Dr. B.R. Ambedkar Open University, Hyderabad-500 003.

Just Released

Question Bank on PLANT PATHOLOGY

The Association of Indian Universities (AIU) initiated a programme of development of Question Bank Books in 1975. So far Question Banks in 25 subjects have been formulated. The one on Plant Pathology is the last in the series. It contains 3000 questions/items consisting of Constant Alternative (CA), Multiple Choice (MC), Multiple Facet (MF), Matching (M), Rearrangement (R), and Supply Type questions consisting of Simple Question (SQ), Completion Question (CQ), Short Answer (SA), Long Answer (LA), and Problem Solving (PS) questions. The publication is useful for Teachers and students.

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THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities

HUMANITIES

Philosophy

1. Chaudhuri, Ritabari. An enquiry into the meaning of art: A comparative study. Calcutta.
2. Misra, Vivek. Philosophical foundations of state with special reference to Karl Marx and Mahatma Gandhi. Durgawati. Dr B K Tiwari, Department of Philosophy, Rani Durgawati Vishwavidyalaya, Jabalpur.
3. Shukla, Kavita. Vedant ke pramukh sampradayan mein Brahma ke avadharna. Durgawati. Dr J P Shukla, Prof and Head, Department of Philosophy, Rani Durgawati Vishwavidyalaya, Jabalpur.
4. Umarani, R. A study in the philosophy of Wittgenstein. Durgawati. Dr (Kum) G Sinha, Department of Philosophy, Rani Durgawati Vishwavidyalaya, Jabalpur.
5. Verma, Dipti. Dr Ram Manohar Lohia ke darshan mein vyakti aur samaj ke avadharna: Ek sameekshatmak vivechan. Devi Ahilya. Dr D D Bandishte, 148 Indrapuri Colony, Indore.

Religion

1. Hashmi, Qaisar Jahan. Classification of faiths, servitudes and practices in the light of Holy Quran and the life of the Prophet. Aligarh. Prof Abdul Aleem Khan.

Fine Arts

Music

1. Mahajan, Sandhya. Ustad Rajbali Khan: Vyaktitva evam krititva. Vikram. Dr Pyare Lal Shrima, Rangmahal, Nai Peeth, Ujjain.
2. Tailor, Sharmila. Malwa mein Dhrupad shafli ke parampara. Vikram. Prof P N Chinchore, Jhankar, 157 Shri Nagar Colony, Indore.

Language & Literature

English

1. Ajit Kumar. The portrayal of the British Raj in Indo-English writings. Devi Ahilya. Dr R K Bajpai, 71 Manglam Apartments, Palasia, Indore.
2. Dixit, Prachi. Modernity in the poetry of Emily Dickinson: Perceptions and revelation. Devi Ahilya. Dr R C Ojha, Department of English, Indore Christian College, Indore.
3. Nayak, Pranab Kumar. The novels of Dickens: A search for values. Calcutta.
4. Padma, P Hannah. Poetics of response: A study of Theodore Roethkes poetry. Krishnadevaraya. Dr A Ramakrishna Rao, Department of English, Sri Krishnadevaraya University College, Anantapur.

5. Pandey, Archana. A critical study of the fiction of J D Salinger. Vikram. Dr B G Tandon, Reader, Department of English, Vikram University, Ujjain.

6. Pattanaik, Pranati. The art of translation. Utkal. Dr Bijay Kumar Das, Pilgrim Road, College Square, Cuttack.

7. Phatak, Chitra. T S Eliot: Exploration of the meaning and purpose of life through his poetry and plays. Devi Ahilya. Dr R Mojes, 7 Church Compound, Near Christian Hospital, Indore.

8. Rizvi, Phalak. Khuwaja Ahmed Abbas: Contribution to Indo-Anglican literature. Vikram. Dr A G Khan, Asst Prof, Department of English, Vikram University, Ujjain.

9. Satyanarayana, E. The plays of Mahasweta Devi: A critical study. Kakatiya. Prof A Jagan Mohana Chari, Department of English, Kakatiya University, Warangal.

10. Shanta, S. Sacred through the profane: A literary study of the fable and the parable with special reference to Jesus Christ, Sri Rama Krishna Paramahansa and Kahlil Gibran. Osmania.

11. Sharma, N P. Eugene O'Neill's mystic vision of death. Vikram. Dr A G Khan, Asst Prof, Department of English, Vikram University, Ujjain.

12. Tarvani, Suvama. Realism in the fiction of Bronte Sisters: A study of the male protagonists. Vikram. Dr S R Julka, 9 Bhakta Nagar, Dussehra Ground, Ujjain.

13. Thakur, Satyanarayan Singh. Family relationship in the novels of Jane Austen. Vikram. Dr B G Tandon, Reader, Department of English, Vikram University, Ujjain.

14. Thakur, Vibha Singh. The fiction of Frank Norris: A thematic study. Ghasidas. Dr R S Rai, Government Arts and Commerce College, Bilaspur.

15. Thapa, Sunseti. The biblical element in the Longfellow's poetry. Durgawati.

Sanskrit

1. Jeena, Pushpa. Alankar Sarvasva ke Jayrath Prant Vimarshini Tika ka sameekshatmak adhyayan. Kumaun. Dr D R Tripathi.
2. Mandal, Amalkumar. A critical study on the opening and concluding verses of the works of the non-duellists of Indian philosophy. Calcutta.
3. Mishra, Babulal. Mahabharat kaleen shiksha pranali. Durgawati. Dr M L Purohit, Department of Sanskrit, Rani Durgawati Vishwavidyalaya, Jabalpur.
4. Satyanarayana, Buddireddy. Pratishakya literature: A study. Andhra.
5. Sharma, Geeta. Mahabharata, Charak tatha

Samkhakarika mein samkhyā siddhānton ka vikāsatmakā adhyāyana. Dayanand.

6. Sharma, Nijānand. **Parasara Smṛiti: Eka adhyāyana.** Dayanand.

Punjabi

1. Rajinder Singh. **Depiction of animals and plants in Guru Granth Sahib.** Jammu. Dr Dovinder Singh.

Dogri

1. Singh, Shiv Dev. **Linguistic study of Duggar's toponomy.** Jammu. Dr Champa Sharma.

Hindi

1. Khurana, Sunita. **Prasad sahitya mein prakriti.** Delhi.

2. Mishra, Vijay Kumar. **Frenchand ke katha sahitya mein samajik chetna.** Vikram. Dr Chandrakant Devtale, Head, Department of Hindi, Govt Girls College, Moti Tabela, Indore.

3. Pandey, Nirmala. **Raikrishan Das aur unka rachna sansar.** Kumaun. Dr D K Paneru.

4. Pokharia, Debsingh. **Chhayavadi kavya ka chhand shastriya adhyayan.** Kumaun.

5. Prameela, K P. **Anuvad ke vyavaharik samasyayen : Hindi aur Malayalam ke visesh sandarbh mein.** CUST. Dr N G Devaki, Reader, Department of Hindi, Cochin University of Science and Technology, Kochi.

6. Rathore, Yogendra Singh. **Bhishma Sahni ke katha sahitya evam natakon mein valcharik pithika evam pragati vadi chintan.** Vikram. Dr Keshri Nandan Mishra, 6 Bijwasam Road, Indore.

7. Sharma, Nandi. **Kumauni lok sahitya ke vividh roopon ka sahititik tatha sanskritik adhyayan.** Kumaun. Dr B B Lohani.

8. Shrivastava, Sarla. **Muktibodh ka gadya sahitya: Ek mulyankan.** Vikram. Dr Chandrakant Devtale, Head, Department of Hindi, Govt Girls College, Moti Tabela, Indore.

Urdu

1. Aliya Khanum. **Evolution of history and Urdu literature: A critical study.** Osmania.

Bengali

1. Chakrabarti, Biswarup. **Natyakar Bijan Bhattacharyya: Bangla adhunik nataker paatham paryay.** Calcutta.

2. Pramanik, Subodh Kumar. **Bangla kathaschitye bratya samaj, 1923-47.** Calcutta.

Gujarati

1. Raval, P J. **Social life in Meghani Madia novels.** Saurashtra. Dr H G Desai.

Arabic

1. Abdul Karim, M. **Moulana Baqir Agah: Life and a critical study of his works.** Calicut. Dr S E A Nadvi, Department of Arabic, University of Calicut, Calicut.

2. Khan, Mohd Samiullah. **The development of new trends and factors in modern Arabic literature.** Osmania.

3. Rahman, Badiur. **Islamic studies in Bengal, 1757-1947.** Calcutta.

Tamil

1. Suresh, R. **A critical study of Silappadikaram.** Calicut. Dr C Govindan, 9/60, Chithralaya, Visvakarnapuram, Chittur.

Malayalam

1. Mathew, V M. **The biblical influence on the novels of Parappurath.** Calicut. Dr P V George Irumbayam, Department of Malayalam, Maharajas College, Ernakulam.

2. Rajan, N. **The plays of C N Sreekantan Nair.** Calicut. Dr K K Karunakaran, Department of Malayalam, University of Calicut, Calicut.

3. Rosy, T T. **The influence of Bible translations in the development and evolution of Malayalam prose.** Calicut. Dr Sukumar Azhicode, Viyyur, Trichur.

Telugu

1. Manikyalakshmi, M. **Creative works of G V Krishna Rao.** Telugu.

2. Muralidhara Rao, E. **A textual study and literary evaluation of Prabandharaja Venkateswara Vijayavilasamu.** Delhi.

3. Sasirekha, Chamarthi. **Randhi Somarjugari kavitwamu: Samagra parisheelana.** Andhra.

4. Sudarshan, R. **Sri Sri Vachana rachanalu.** Telugu.

5. Venkateshwari, P. **Abhyudaya kavula pal Telangana vimochanodhyama prabhavamu.** Kakatiya. Prof P Jagannadham, Vice Chancellor, Telugu Univeristy, Hyderabad.

Geography

1. Bora, Navindra Singh. **Man nature symbolisis in development planning perspective: A case study of Kota Basin.** Kumaun. Dr D S Jalal.

2. Datta, Mitra. **A micro-level approach to the strategy for the development of backward areas: A case study of Purulia.** Calcutta.

3. Khan, Mohd Ishrat Saeed. **Urban influence on rural economy in Aligarh District, U P.** Aligarh. Prof A Aziz.

4. Mehra, Chandra. **The levels of agricultural productivity in Kumaun Himalaya: An inter regional analysis.** Kumaun. Dr R Chand.

5. Purushotham Babu, I. **Water balance and development of agriculture in Kurnool District, Andhra Pradesh, India.** Krishnadevaraya. Dr M Sambasiva Rao, Department of Geography, Sri Krishnadevaraya University College, Anantapur.

6. Rohatgi, Sushma. **The demographic profile of West Bengal.** Calcutta.

7. Saikia, Naranath. **Majuli: A geographic study of its problems and prospects.** Dibrugarh. Dr M Borthakur, Prof

(Retd), Gauhati University, Guwahati and Dr (Mrs) G L Borooah, Reader, Department of Education, Gauhati University, Guwahati.

8. Saxena, Savitarani. Population dimensions and linkages in Kashipur Tehsil, Nainital. Kumaun. Dr S C Sebarwal.

9. Shukla, Nisha. Raipur jile mein sansadhan mulyankan evam vilas: Ek bhougolik upagam. Ravishankar. Dr H S Gupta, Prof and Head, School of Studies of Geography, Pt Ravishankar Shukla University, Raipur.

History

1. Ahirwar, Ram Kumar. Jabalpur jile kee murtikala ka adhyayan: Gupta kal se Kalchuri kal tak. Durgawati. Dr S N Mishra, Department of Ancient Indian History, Culture and Archaeology, Rani Durgawati Vishwavidyalaya, Jabalpur.

2. Dhirender Kumar. British policy towards the preservation and conservation of old monuments in India, 1784-1905. Kumaun. Dr A S Rawat.

3. Ghosh, Ranjan Kumar. A study of the labour movement

in Jharia Coalfield, 1900-1977. Calcutta.

4. Gogoi, Jahnabi. Agrarian systems of Mediaeval Assam. Dibrugarh. Prof (Mrs) S L Baruah, Department of History, Dibrugarh University, Dibrugarh.

5. Harbola, Namita. Gorkha Regiment ka itihās san 1814-1947 isvi. Kumaun. Dr C S Pathak.

6. Jena, Fakir Charan. State, society and culture of Orissa under the Imperial Gangas, 1112 AD - 1435. Sambalpur. Dr P K Mishra, Prof, Department of History, Sambalpur University, Jyoti Vihar, Burla.

7. Kanoje, Archana. Chhattisgarh ke antragat Rajnandgaon Riyasat ka prashasnik itihās, 1741-1947. Ravishankar. Dr B S Verma, Prof and Head, Department of History, Govt Arts and Science College, Durg.

8. Samunder Singh. Dadabhai Nauroji and the British Empire. Dayanand.

9. Sharma, Paramjit. Growth of industries in the Panjab, 1849-1947. Dayanand.

CALENDAR OF EVENTS

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary/ Officer to be contacted
Oct 6-13, 1994	Course on Research Methodology	To provide basic technique of qualitative and quantitative data collection and analysis including research design and report writing	Indian Social Institute, New Delhi	Coordinator, Training Programmes, Centre for Research, Training and Action for Social and Economic Development, 10, Institutional Area, Lodi Road, New Delhi-110003
Nov 7-9, 1994	VIII Annual Conference of the Asian Association of Open Universities	Theme : Structure and Management of Open Learning System	Indira Gandhi National Open University, New Delhi	Prof. C.L Anand, Pro-Vice Chancellor, Convenor, AAOU VIII Conference, IGNOU, Maidan Garhi, New Delhi-110068
Nov 8-11, 1994	23rd IFTDO World Conference on Human Resource Development	Theme : Global Changes and Stability in 2000 AD — Strategic Issues	Indian Society for Training and Development, New Delhi	Dr. Uddesh Kohli, Conference Coordinator, Indian Society for Training & Development, B-41, Institutional Area, New Mehrauli Road, New Delhi-110016

**MINISTRY OF HUMAN RESOURCE DEVELOPMENT
(DEPARTMENT OF EDUCATION)
ES. 1 SECTION**

GERMAN ACADEMIC EXCHANGE SERVICE FELLOWSHIPS — 1995-96

Applications on plain paper in the prescribed format given below, are invited from Indian nationals, for the award of DAAD Fellowships (Nine) offered by the German Academic Exchange Service of the Federal Republic of Germany for advanced studies/research at Universities/research institutions in the Federal Republic of Germany for the year 1995-96. **ONLY THOSE EMPLOYED AND SPONSORED CANDIDATES ARE ELIGIBLE** whose employers undertake to re-employ them on their return from FRG.

2. SUBJECT FIELDS: Metallurgical Engineering & Material Science, Mechanical Engineering, Electrical Engineering, Electronics, Environmental Science & Engineering, Computer Science, Agronomy, Biotechnology, Horticulture & Forestry, Veterinary Science & Animal Husbandry, Sociology, Economics & History.

3. EDUCATIONAL QUALIFICATION AND OTHER ELIGIBILITY CONDITIONS: i) A Master's Degree with first class at Master's or Bachelor's level. ii) At least two years of professional experience after obtaining the core qualification as on 1-10-1994. iii) Only those candidates who are recommended by their employers and whose employers undertake to re-employ them on their return from Germany are eligible to apply. iv) Candidates must have established contacts with German Universities/Institutes regarding placement and should furnish recent-dated letters from German Scientists/professors confirming that their proposed research project could be carried out at their Institute under their guidance. Copies of correspondence must be submitted alongwith the application. v) Candidates from Sociology, Economics and History should possess adequate knowledge of the German language.

4. These fellowships are open to those who are from the staff of I.I.Ts, Universities/Institutions, deemed to be Universities/Institutions of National Importance, Indian Institute of Management etc. and also from Agricultural, Veterinary and Forestry universities/Institutions.

5. Within the framework of this programme, applications are also invited from those staff-members who are enrolled for Doctorate (Ph.D) studies in India. They would be considered under the "Sandwich-model" fellowship programme of the DAAD. Applicants for these fellowships should have drafted out their Ph.D. projects keeping in view the objectives and guidelines of the Institutions where they are employed. The "Sandwich-Model" is multi-phased fellowship scheme within which an applicant can carry out his research alternatively in India and in the Federal Republic of Germany under the supervision of an Indian as well as a German guide according to a schedule previously drafted out in consultation with them.

The salient features of this new scheme are:- i) The research stay in the Federal Republic of Germany is not limited to a single visit; the fellowship holder could either complete his research at a German University/Institute in one stage or carry out part of the work there, return to his home Institute to continue the work and later visit Germany again, if required. ii) Visit of Indian supervisor to the German University/Institute for consultation while the Ph.D. candidate is working there, if required. iii) Visit of the German guide to India for consultation, if required. iv) Applicants for "Sandwich-Model" Fellowships are required to draft out their Ph.D. projects keeping in view the objectives and guidelines of the Institutions where they are employed.

6. The fellowships will be awarded for advanced studies and research work and in principle not for obtaining a degree in Federal Republic of Germany. Scholars working for their Ph.D. except those applying under the Sandwich-Model are, therefore, advised to complete their doctorate thesis before their departure for the Federal Republic of Germany.

7. AGE LIMIT : 32 years as on 1st October, 1994 with two years relaxation in the case of Scheduled Caste and Scheduled Tribe candidates (except those applying under the Sandwich-Model Scheme, for whom the age limit is 36).

8. DURATION : One academic year with effect from October, 1995 with possibility of extension. The period of Fellowship will be preceded by a compulsory four months German Language course to be conducted at one of the branches of the Goethe Institute in the Federal Republic of Germany.

9. VALUE OF FELLOWSHIP : (a) Maintenance allowance at the rate of DM 1,600 per month. (b) Free air passage from the airport nearest to the Scholars' University/Institute town to the place of study in Germany and back. (c) Exemption from payment of University tuition and fees. (d) Special one-time clothing allowance of DM 400. (e) Where applicable baggage allowance of DM 150 each way. (f) An Initial allowance of DM 200. (g) Book allowance of DM 200-Per Year. (h) Allowance for charges for compulsory health insurance per year. (i) Free tuition, boarding, lodging plus pocket allowance during the period of the German language course (Preceding studies/research). (j) Married scholars, who wish to call their spouses to Germany after completion of the German Language course, for a duration longer than 3 months, may apply for a extra family allowance of DM 410-per month. However, it is very difficult to find affordable family accommodation. Those scholars who terminate their fellowships prematurely (before less than a total of 8 months) are not eligible for this allowance. (k) Under special conditions where the awardee is not able to rent accommodation within the financial limits, he can apply for an additional rent subsidy.

14. IMPORTANT INSTRUCTIONS: NOTE: (1) The following documents must be attached with the application: (a) Attested copy of the certificate indicating the date of birth (b) Candidates belonging to SC/ST must attach a copy of certificate to this effect (c) Attested copies of marks sheet of the qualifying examination (d) Attested copies of all degrees/diplomas/ certificates etc. (e) A clear and precise programme of study/research (minimum 500 words) in Federal Republic of Germany (f) A recent passport size photograph of candidate to be affixed on the prescribed application form. (2) Application in the subject fields other than those specified above will not be considered. (3) Candidates who have already been abroad for study/ specialization/training for a period exceeding six months either on a scholarship or on their own are eligible to apply only if they have been in India for at least two consecutive years after their return from abroad (4) Candidates who are abroad will, if called for interview have to travel at their own expense. Selected candidate will be required to execute a bond with sureties, to return to India immediately on completion of fellowship period, alongwith other conditions including stay in India for three years. (5) Alongwith their applications, candidates are expected to give detailed account of their proposed research work and indicate the German University/Institute where they wish to undertake their research. Candidates are expected to establish contacts with German Scientists/Professors (by sending them a copy each of their bio-data and proposed research plan) and get confirmation from them in writing that their proposed research project could be carried out under their guidance. One of the basic conditions for these fellowships is that the candidates are able to give documentary proof of placements at German Universities/Institutes for carrying out their research work (recent-dated letter from German Professors). Only those candidates should apply who have already obtained placements letters from German institutions. The GAES, New Delhi office will help the candidates in verifying addresses of German Universities/Institutes so that candidates could enter into correspondence. (b) Candidates from the fields of Sociology, Economics and History should possess adequate knowledge of German language. (6) Candidates should have sufficiently good knowledge of India and the Donor country. (7) Applications/Advance application which do not contain any of required documents will be treated as incomplete and will not be considered. (8) In case no interview letter is received by a candidate, who applied for DAAD Fellowship-1995-96, up to Nov. 30, 1994, it may be presumed that he/she has not been selected. No correspondence will be entertained in this regard. (9) Canvassing in any form will be a disqualification. (10) Candidates must send their application duly sponsored by their employers. (11) Applications received after the last date of receipt of application will not be entertained.

The applications should be sent (Preferably typed) to the Under Secretary, Ministry of Human Resource Development, Department of Education, External Scholarship Division, Selection ES. 1, A.1/W.3, Curzon Road Barracks, Kasturba Gandhi Marg, New Delhi - 110001 latest by Sept. 30, 1994. Application received thereafter will not be considered.

N.B.: No application forms are supplied by this Ministry.

PROFORMA FOR APPLICATION

Recent Passport Size Photograph duly signed to be pasted here. Without photograph application will be considered incomplete.

1. Name of the Scholarship Scheme
2. Subject
3. (a) Name of the candidate (in Block letters) with full mailing address.
(b) Father/Husband Name:
4. Date of birth and the State to which the candidate belongs
5. Whether Member of SC/ST (A certificate from the competent authority should be attached).
6. Academic record starting from High School/Higher Secondary (Attested Photostat copies of certificates to be attached).

Name of the University/ Board/Instt.	Examination(s)	Year of passing	Division class with position if any (In case no class is awarded and only grading is done the conversion formula may be mentioned)	Percentage of marks obtained and position if any.	Subject taken
--------------------------------------	----------------	-----------------	--	---	---------------

7. Details of professional/practical training and Research experience specifying the period and number of papers published/previous employment with name and date of employment if any.
8. Nature of the present employment with name and date of appointment/designation and the name and address of the employer.
9. Have you been abroad? If so give full particulars of the country visited and the period of stay. Also mention the date, month and year of return to India (purpose of visit also to be indicated).
10. Proposed programme of study/research and Training specifying the following. (i) The work presently engaged in : (ii) Nature and Programme of Study research/training desired; 500 words. (a) Title of study/Research. (b) Hypothesis/Objective of study. (c) Methodology (to be adopted) (d) Relevance of study in Indian/academic context.

Place :

SIGNATURE OF CANDIDATE

Date :

NOTE : Employed persons must send their applications through their Employers.

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CLASSIFIED ADVERTISEMENTS

WANTED

Applications are invited for the following post in St. Thomas College, Pala, so as to reach the undersigned within thirty days from the date of publication of this notification. Age and Qualifications as prescribed by the Govt./University/U.C.C.

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Application forms can be had from the College Office on payment of Rs. 120/-.

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- i) Agril. Engg. 2 posts (SC-1, ST-1)
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Educational Qualification : A consistently good academic record with a Doctorate Degree in the relevant field. About 5 years experience in teaching and in research and development. Candidate not possessing Ph.D. in Engineering/Technology may also be considered if they have to their credit equivalent published work of high standard in an institution or in an industry.

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- iii) Electronics 3 posts (SC-2, ST-1)
- iv) Elect. Engg. 3 posts (SC-3)
- v) Mech. Engg. 2 posts (SC-1, ST-1)
- vi) Comp. Sc. 3 posts (SC-2, ST-1)
- vii) English 1 post (SC-1)
- viii) Economics 2 posts (SC-1, ST-1)
- ix) Chemistry 3 posts (SC-2, ST-1)
- x) Mathematics 2 posts (SC-1, ST-1)
- xi) Physics 2 posts (SC-1, ST-1)

Pay Scale : Rs. 2200-75-2800-100-4000/-.

Age limit : 40 Years

Educational Qualification : First Class Bachelor's Degree in appropriate branch of Engineering and Technology or First Class Master's Degree in appropriate branches of study in Humanities and Sciences (ii) Qualifying in an All India Examination (Such as GATE or equivalent).

Desirable : (i) A good Master's Degree in appropriate field of Engineering and Technology or Doctorate Degree in the relevant field Management/Humanities/Sciences. (ii) About one year experience in teaching/research/industry.

LABORATORY ASSISTANT :

Total Posts - 2

- i) Civil/Agri. Engg. 2 posts (SC-1, ST-1)

Pay Scale: Rs. 1400-40-1800-EB-50-2300/-

Age limit : 18 to 35 years

Educational Qualification : Diploma in Civil/Agri. Engg. with 5 years relevant experience. (One post for Civil and one post for Agriculture)

TECHNICIAN : Total Posts - 1

- i) Mech. Engg. 1 post (SC-1)

Pay Scale: Rs. 1200-30-1560-EB-40-2040/-

Age limit : 18 to 35 Years

Educational Qualification : Diploma in Mech. Engg. with one year experience or ITI/NTC in relevant trade with 3 years experience.

For application form write to Deputy Registrar (Admin), NERIST, P.O. Nirjuli, Pincode : 791109, Arunachal Pradesh enclosing a self addressed Rs. 2/- stamped envelope (23 cm x 10 cm) together with a fee of Rs. 2.50 in crossed Bank Draft on any scheduled Bank payable at Nirjuli/Itanagar. Candidates abroad may apply on plain paper.

Age and experience are relaxable as per the prescribed norms.

Applications complete in all respects along with attested/photo copies of the certificate/testimonials should reach the Deputy Registrar(Admin) on the above address on or before 25.10.1994 by Registered post only.

Incomplete applications and applications received late will not be considered.

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SCHOOL OF CORRESPONDENCE COURSES AND DISTANCE EDUCATION

A.P.S. UNIVERSITY, REWA - 486 003 (MP)



ADMISSION NOTICE Session 1994-95

Admission is open to persons from all-over India and Indian Nationals settled abroad (NRIs) for the following correspondence courses.

<i>Courses</i>	<i>Duration</i>	<i>Eligibility*</i>
1. Master of Education (MEd)	15Mths	B.Ed. or Equivalent Degree
2. Bachelor of Library & Information Science (BLISc)	1 Yr	Graduates
3. PG Diploma in Computer Science and Applications (PGDCA)	18 Mths	Graduates
4. PG Diploma in Environmental Impact Assessment (PGDEIA)	1 Yr	Science, Agriculture Engineering Graduates
5. PG Diploma in Pollution Management (PGDPM)	1 Yr	Science, Agriculture Engineering Graduates
6. PG Diploma in Pharmacy (PGD Pham)	18 Mths	Science Graduates
7. PG Diploma in Journalism (PGDJ)	1 Yr	Graduates

**Degree from a recognised University*

Application forms and other details can be had from Professor-In-Charge, the School of Correspondence Courses & Distance Education, APS University, Rewa-486 003 (MP) by sending a requisition along with a crossed demand draft of Rs. 150/- drawn in favour of Professor-In-Charge, School of Correspondence Courses & Distance Education, APSU, Rewa and a self addressed stamped cover (Size 25 x 12 Cm). *Cheques, Postal Orders and Money Orders are not acceptable.* The application forms will be available w.e.f. 15th September, 1994.

The last date for the receipt of duly completed application form is 20th Oct. 1994 (without late fee) and 30th Oct. 1994 (with late fee).

Note: The University has no agents. Applicants are advised to correspond directly to Professor-In-Charge, Correspondence Courses and Distance Education or the Registrar, APS University, Rewa.

Dr R.N. Shukla
Professor-In-Charge

Dr M.P. Agnihotri
Registrar

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CANADIAN STUDIES FELLOWSHIPS FOR THE ACADEMIC YEAR 1995-96

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1. Faculty Enrichment
2. Faculty Research
3. Doctoral Research

Eligibility

Faculty Enrichment

Applicants will normally be full-time, permanent teaching members of the academic staff of a recognized institution of higher education or an equivalent degree-granting organization in India and must be proficient in either English or French. In addition, while this is not mandatory, applicants should provide evidence of their interest in or involvement with Canada prior to the application, if any. This may be demonstrated by courses already given, research undertaken, extra-mural activities, membership in the Indian Association for Canadian Studies (IACS), etc.

Faculty Research

Applicants will normally be full-time members of the academic staff of a recognized institution of higher education or an equivalent degree-granting organization in India, or scholars at research and policy institutes in India who undertake significant research projects involving Canada. Professors emeritus may also apply. Applicants should hold a degree equivalent to postgraduate qualification. Applications will be considered from applicants without these formal qualifications only if successful research experience can be demonstrated. Applicants must be proficient in either English or French. In addition, while this is not mandatory, applicants should provide evidence of their interest in or involvement with Canada prior to the application, if any. This may be demonstrated by courses already given, research undertaken, extra-mural activities, active membership in the Indian Association for Canadian Studies (IACS), etc.

Doctoral Research

Applicants must be citizens or permanent residents of India. They must also be enrolled as doctoral candidates in a recognized institution of higher education or equivalent degree-granting organization in India who will have completed course and other requirements of the Ph.D. by the time the tenure of the research award commences. They must be proficient in either English or French.

LAST DATE FOR RECEIPT OF COMPLETED APPLICATIONS IS NOVEMBER 30, 1994.

Please write for further details and application form (specify the category of fellowship) by sending self-addressed Rs. 4/- stamped envelope (5" x 10") to:

**The Resident Director
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5 Bhai Vir Singh Marg
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